ORDER NO. TSD81070010C2

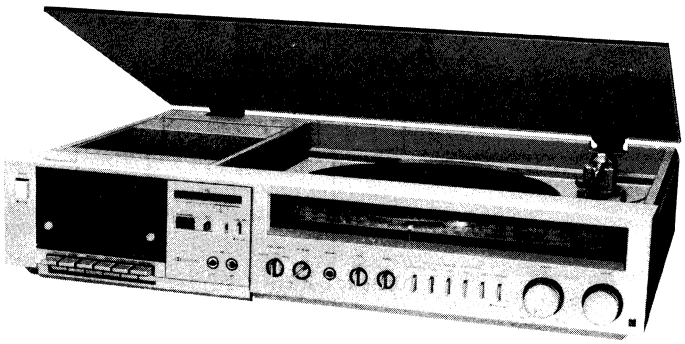
Service Manual

FM/AM/FM STEREO WITH CASSETTE TAPE DECK AND RECORD PLAYER

DOLBY SYSTEM

Stereo Music Centre

SG-2220



Specifications

AMPLIFIER SECTION

Power Output	MPO2X25W (THD 5%, 4Ω) RMS2X17W (THD 5%, 4Ω) One Channel Driven RMS2X13W (THD 5%, 4Ω) Both Channel Driven
Frequency Response	30Hz ~ 20kHz, ±1.5dB
Input Sensitivity and Impedance:	
AUX	250mV, 47kΩ
Mic	1mV, 1.5kΩ
Rec. Out and Impedance	40mV, 82kΩ
Tone Controls:	
Bass	±10dB, at 100Hz
Treble	±10dB, at 10kHz

FM TUNER SECTION

Frequency Range	87.5MHz~108 MHz
Intermediate Frequency (IF)	10.7MHz
Sensitivity	2.5μV (S/N 26dB MOD. 40kHz) (DIN)
Image Ratio	40dB (98MHz)
Signal/Noise Ratio	62dB (at 1kHz, 60dB, 40kHz)
Distortion:	
Mono	0.5% (at 1kHz, 60dB, 40kHz)
Stereo	0.6% (at 1kHz, 60dB, 40kHz)
Stereo Separation	40dB (at 1kHz, 60dB, 40kHz)
Selectivity	50dB (at 1kHz, 60dB, 40kHz)

AM TUNER SECTION

Frequency Range	MW; 525kHz ~ 1605kHz (571m ~ 187m) LW; 150kHz ~ 350kHz (2000m ~ 857m)
Intermediate Frequency (IF)	450kHz
Sensitivity	MW; 150μV/m (1MHz) LW; 250μV/m (240kHz)
Image Ratio	MW; 45dB (1MHz) LW; 40dB (240kHz)

RECORD PLAYER SECTION

Player System	Belt-Drive, Automatic Return
Turntable	28cm
Turntable Speeds	33-1/3 and 45rpm, 2-seed
Wow and Flutter	±0.2% (DIN WTD)
Phonomotor	DC Motor
Cartridge	Moving Magnet type (EPC-77SMAD)
Stylus	Diamond (EPS-75STCSD)
Stylus Pressure	3.5g ±0.5g
Frequency Response	20Hz ~ 18kHz
Separation	15dB (1kHz)
Signal/Noise Ratio	55dB (DIN-B)

* Specifications are subject to change without notice for further improvement.

* "Dolby" and the double-D symbol are trade marks of Dolby Laboratories.
* Noise reduction system manufactured under license from Dolby Laboratories.

TAPE DECK SECTION

Deck System	Auto-Stop Cassette System
Track System	4-Track, 2-Channel
Recording System	AC Bias (50kHz)
Erasing System	AC Erase (50kHz)
Tape Speed	4.75cm/sec. (1-7/8 i.p.s.)
Frequency Response	30Hz ~ 15kHz (NORMAL) 30Hz ~ 15kHz (CrO_2) 30Hz ~ 16kHz (METAL) } (DIN)
Signal/Noise Ratio:	
Dolby NR-OUT	53dB (NORMAL) 55dB (CrO_2) 56dB (METAL) } (DIN)
Dolby NR-IN	60dB (NORMAL) 63dB (CrO_2) 64dB (METAL) } *
	* (When Dolby NR IN, improved 10dB or more from Dolby NR OUT at more than 5kHz) (DIN)
Wow and Flutter	0.15% (WRMS) ±0.3% (DIN WTD)

POWER CONSUMPTION . . . 100W

POWER SUPPLY AC110V, 120V, 220V, 240V, 50/60Hz

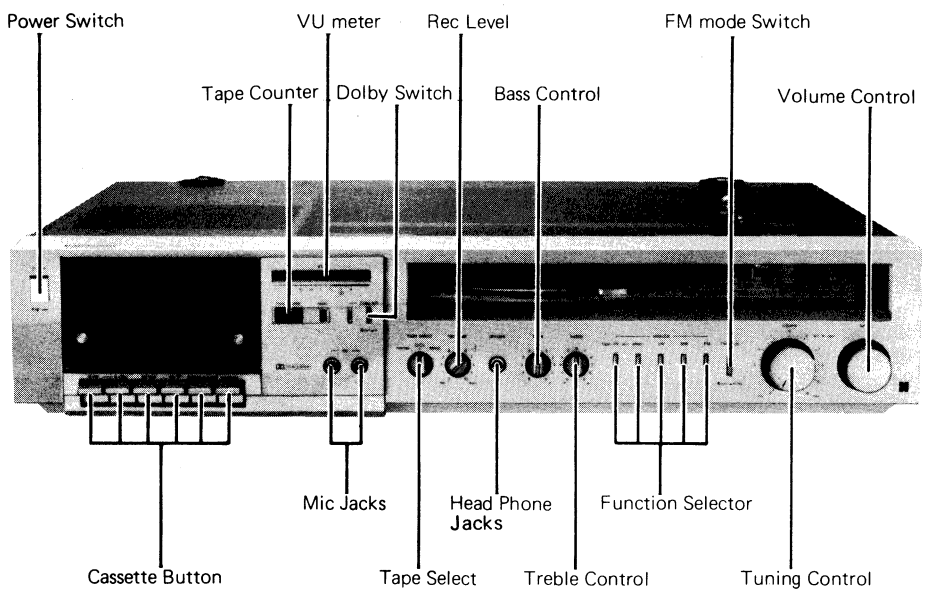
DIMENSIONS: (W x H x D)
Centre Unit . . . . . 600mm x 120mm x 445mm

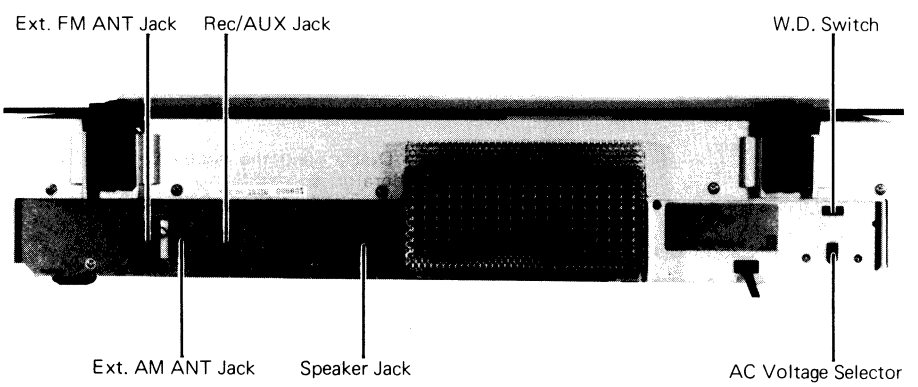
WEIGHT
Centre Unit 10.5kg

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

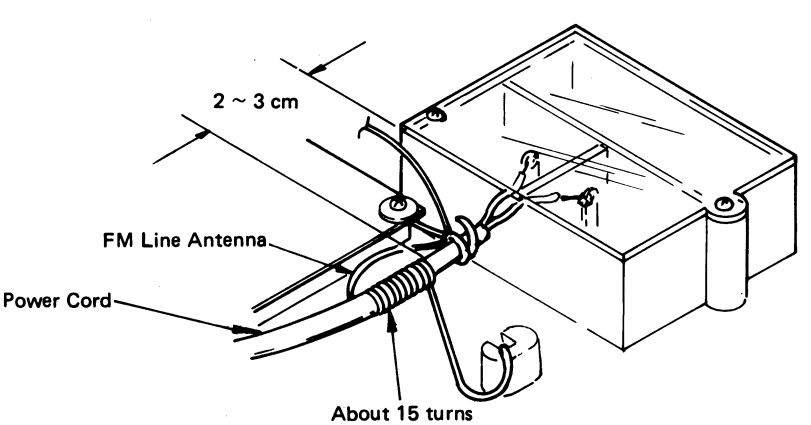
LOCATION OF CONTROLS





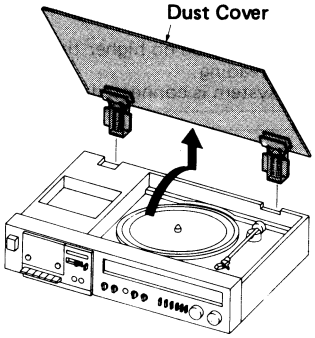
SERVICE AID

■ **Disposition of FM Line Antenna**

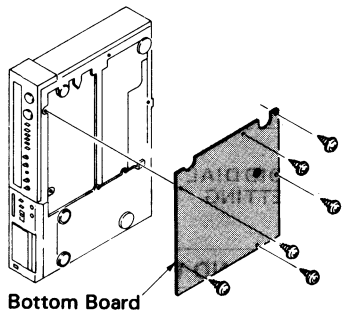


DISASSEMBLY INSTRUCTIONS

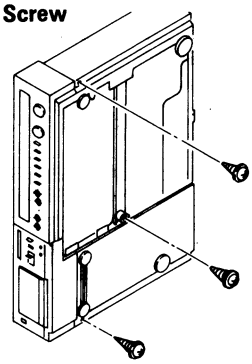
❶ Remove Dust Cover



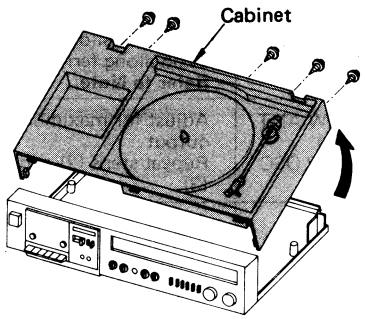
❷ Remove Bottom Board



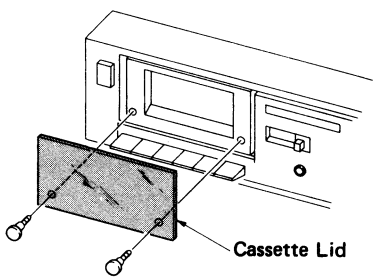
❸ Remove Screw



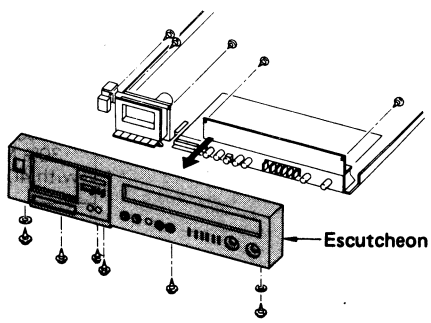
❹ Remove Cabinet



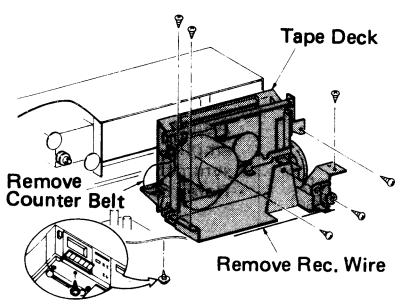
❺ Remove Cassette Lid



❻ Remove Escutcheon



❼ Remove Tape Deck



- **To Replace Parts on P.C. Board** . . . . . Refer to ❶ ~ ❹.
- **To Remove Record Player** . . . . . Refer to ❶, ❸, ❹.
- **To Remove Escutcheon** . . . . Pull Knobs and Refer to ❶, ❸ ~ ❻.
- **To Remove Tape Deck** . . . . . Refer to ❶, ❸, ❹, ❺, ❼.

HOW TO REPLACE CHIPS

1. Remove solder from chip by using solder sucker.
2. Remove chip with tweezers by rotating it while removing solder as shown in fig. 1.
3. Solder circuit board first and then solder chip in the direction of the arrow as shown in fig. 2.

Notes:
1. Do not use chip again which is removed from P.C. Board.
2. Use lead wire with insulator for replacement instead of chip jumper.

Color	Original Parts Name
Black	Chip Resistor
Brown	Chip Capacitor
Blue	Chip Jumper

Fig. 1

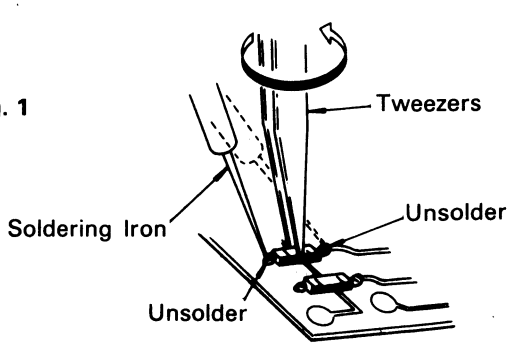
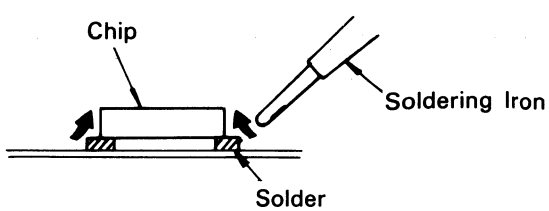


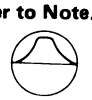
Fig. 2



ALIGNMENT INSTRUCTIONS–1

■ **Radio**

Control Positions:
1. Volume Control . . . . . Maximum (AM IF and RF, FM RF); Minimum (FM IF)
2. Function Selector . . . LW, MW, FM
3. Output of signal generator should be no higher than necessary to obtain output reading.
4. Make certain that speaker system is connected to the receiver when aligning.

STEP	SIGNAL GENERATOR OR SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUST	REMARKS
	CONNECTION	FREQUENCY				
AM-IF AND RF ALIGNMENT						
1 (AM)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	450 kHz 30% Mod. with 400 Hz	Point of non-interference	Output meter across speaker jack (L).	T201 (AM CFT) T202 (AM 2nd)	Adjust for maximum output.
2 (LW)		150 kHz 30% Mod. with 400 Hz	150 kHz		L202 (LW OSC) L205 (LW ANT)	• Adjust for maximum output by sliding coil L205 along ferrite core. • **Refer to Note.**
3 (LW)		350 kHz 30% Mod. with 400 Hz	350 kHz		CT202 (LW ANT Trimmer) CT204 (LW OSC Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
4 (MW)		550 kHz 30% Mod. with 400 Hz	550 kHz		L201 (MW OSC) L204 (MW ANT)	• Adjust for maximum output by sliding coil L204 along ferrite core. • **Refer to Note.**
5 (MW)		1500 kHz 30% Mod. with 400 Hz	1500 kHz		CT201 (MW ANT Trimmer) CT203 (MW OSC Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).
Note: Cement antenna coil L205, 204 with wax after completing alignment.						
FM-IF ALIGNMENT						
1	High side through 5pF to point TP101 and TPE (earth).	10.7 MHz (400 kHz SWP).	Point of non-interference (on/about 98 MHz).	Connect vert. amp. input of scope to point TP201 and TP202 (earth).	T101 (FM 1st) T203 (FM Disc)	• Adjust for maximum amplitude and symmetrical curve. • **Refer to Note.** 
2					T204 (FM Disc) T203 (FM Disc)	Adjust for maximum amplitude and proper linearity between about ± 100 kHz markers.
Note: Before allgning step 1, turn the cores of T204 fully counterclockwise.						
FM-RF ALIGNMENT						
1	Connect to EXT. FM antenna terminal through Dummy antenna. (300Ω)	87.35 MHz 30% Mod. with 400 Hz	87.35 MHz	Output meter across speaker jack (L).	L102 (FM OSC Coil)	Adjust for maximum output.
		90 MHz 30% Mod. with 400 Hz	90 MHz		L101 (FM RFT Coil)	
2		106 MHz 30% Mod. with 400 Hz	106 MHz		CT101 (FM ANT Trimmer)	Adjust for maximum output. Repeat steps (1) and (2).
		108.3 MHz 30% Mod. with 400 Hz	108.3 MHz		CT102 (FM OSC Trimmer)	

Notes: 1. As three output readings will be present, adjustments must be made at center frequency.
1. To correct the drift of FM band coverage (87.5 or 108 MHz) adjust the coil L102 and the trimmer CT102.

ALIGNMENT INSTRUCTIONS–2

■ **FM Stereo Alignment**

Control Positions:
Volume Control . . . . . Audible level of speaker sound
Treble Control . . . . . Center
Bass Control . . . . . Center
Band Selector . . . . . FM
FM Mode . . . . . AUTO

EQUIPMENT CONNECTION	ADJUST	REMARKS
Connect frequency counter to TP11M and TP202 (earth) at 98MHz, non modulation 60 dB input (Mono Signal)	VR11M	Adjust VR11M for 19 kHz ± 100 Hz on frequency counter reading.

SEPARATION ALIGNMENT

Control Positions:
1. Stereo Modulator: Connect Stereo Modulator to EXT. Mod. terminal of signal generator.
2. Signal Generator: Modulation Rate of 19 kHz Pilot Signal 9%
   Modulation Rate of Right and Left Signal . . . . . 30% (1 kHz)
   Output Level . . . . . 60 dB
3. Tuner (Balance Control): Adjust balance control so that output level from both channels becomes equal.

EQUIPMENT CONNECTION				
SIGNAL GENERATOR	VTVM	OSCILLOSCOPE	ADJUST	REMARKS
Connect to EXT. FM antenna terminal through dummy antenna. (300Ω)	Connect across speaker jack (Imp. 4Ω)	Connect vertical amp input of scope to terminals of VTVM.	VR12M (Separation Control)	Adjust VR12M for minimum indication of VTVM from the left side output when the right side of stereo modulatoris modulated. Adjust VR12M in the same way for the right side "R to L" separation.

Note: When aligning separation, disconnect frequency counter.

■ **Cassette Tape Deck Alignment**

BIAS ALIGNMENT

Control Positions:
1. Tape Deck Condition . . . . . Recording Condition
2. Dolby Switch . . . . . OUT
3. Whistle Defeat Switch . . . . . B Side

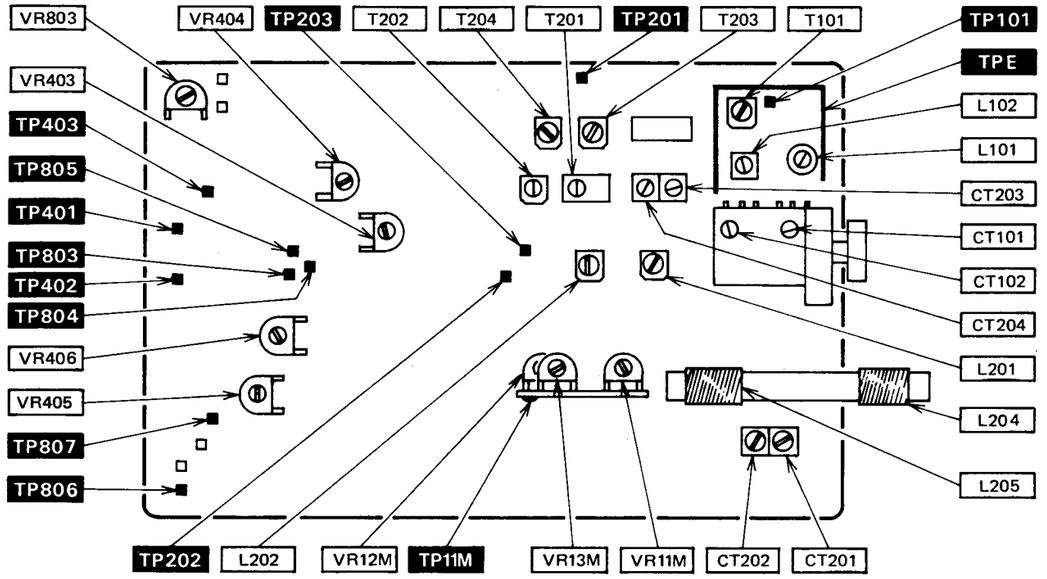
STEP	ALIGNEMENT ITEM	VTVM CONNECTION		TAPE SELECTOR	ADJUST	REMARKS
		Positive	Negative			
1	Erase Bias	TP801	TP802	METAL	VR801	Adjust VR801 to get 150±5 mV reading on VTVM.
2	Recording Bias	TP401 (L ch) TP402 (R ch)	TP403	NORMAL	VR803 VR802	• Adjust VR803 to get same voltage. • Adjust VR802 to get 3.8±0.1 mV reading on VTVM.

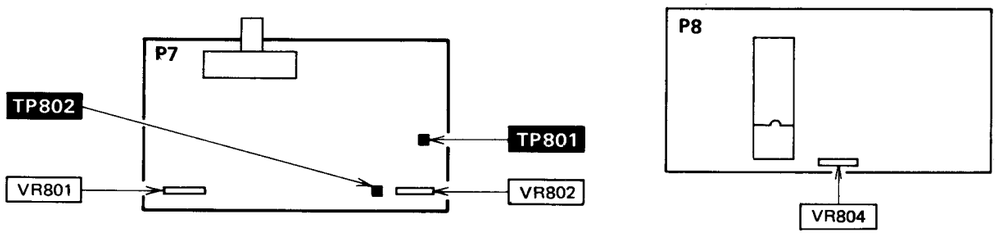
AZIMUTH, DOLBY, REC CURRENT, VU METER ALIGNMENT

Control Positions:
1. Tape Deck Condition . . . . . PLAY Condition
2. Tape Selector . . . . . NORMAL

STEP	ALIGNMENT ITEM	VTVM CONNECTION		TEST TAPE	DOLBY SWITCH	ADJUST	REMARKS
		Positive	Negative				
1	R/P Head Azimuth	Speaker Terminal	Speaker Terminal	10 kH –5dB	OUT	Head Screw	Adjust screw for max. indication on VTVM.
2	Dolby Level	TP803 (L ch) TP804 (R ch)	TP805	400 Hz 200 nWb/m	IN	VR403 VR404	Adjust VR403 and VR404 for 580±20 mV reading on VTVM.
3	Rec Current	TP401 (L ch) TP402 (R ch)	TP403	—	IN	VR405 VR406	• Connect TP806 and TP807. • Apply 1 kHz, 300 mV to AUX IN and adjust Rec level volume at Dolby level. • Adjust VR405 and VR406 for 0.58 ±0.02mV reading on VTVM.
4	VU Meter	non connection		400 Hz 200 nWb/m	IN	VR804	Adjust VR804 to light at +3VU (■ mark).

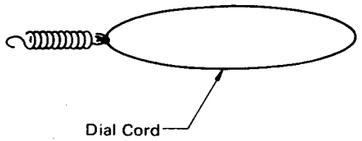
ALIGNMENT POINTS

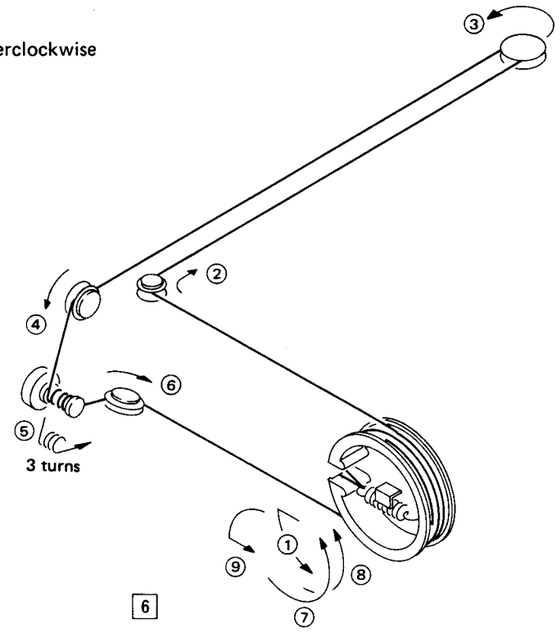




DIAL CORD STRINGING GUIDE

Note:
Dial Drum . . . . . Turn Fully Counterclockwise
Dial Cord Loop Length . . 108 cm





REPLACEMENT PARTS LIST

NOTES:

1. Components identified by ⚠ have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
2. Parts No. listed in this parts list are of service parts.

Ref. No.	Part No.	Description	Per Set (pcs.)
TRANSISTORS			
Q11H, 12H	2SC2405	Phono EQ	2
Q13H, 14H	2SC2405	Phono EQ	2
Q11T, 12T	2SC2405	Tape EQ	2
Q13T, 14T	2SC2405	Tape EQ	2
Q101	2SC1675-L	FM RF Amp.	1
Q102	2SC1674 M	FM MIX	1
Q103	2SC1675-L	FM OSC	1
Q201	2SC945L	Switching	1
Q202	2SA733-P	Switching	1
Q301	2SC945L	Switching	1
Q401, 402	2SC945L	Switching	2
Q403, 404	2SC945L	Rec. Amp.	2
Q405, 406	2SC945L	Muting	2
Q501, 502	2SC1843	Pre. Amp.	2
Q503, 504	2SC945L	Muting	2
Q801	2SC1383NC	Bias OSC	1
Q802	2SA720-R	Stabilizer	1
Q803	2SC1383Q	Switching	1
Q804	2SC945L	Muting	1
Q901 ⚠	2SD836	Stabilizer	1
INTEGRATED CIRCUITS			
IC11M	LA3350S	FM PLL MPX	1
IC11N (R, L)	NE646BN	Dolby NR	2
IC201	AN217P	FM, AM IF	1
IC701 ⚠	STK457MM	Power	1
IC801	LB1416	Meter Drive	1
DIODES			
D11M	MA162A	Switching	1
D101, 102	MA162A	FM AGC	2
D103	MA345	FM AFC	1
D201, 202	20A90	FM DET	2
D203	MA27A2	AOC	1
D204	20A90	AM DET	1
D205	20A90	RECT	1
D206	SLP260C	Tuning Ind.	1
D207	MA162A	Switching	1
D301	SLP160C	Stereo Ind.	1
D401	LN324GP	Dolby NR Ind.	1
D402, 403	MA162A	Switching	2
D404	MA162A	Switching	1
D801	MA162A	Switching	1
D802, 803	LN317GP	VU Ind.	2
D804	LN317GP	VU Ind.	1
D805, 806	LN217RP	VU Ind.	2
D807, 808	MA162A	Muting	2
D901, 902 ⚠	S2V20F	RECT	2
D903, 904 ⚠	S2V20F	RECT	2
D905 ⚠	S1RBA10	RECT	1
D906	RD16EB3	Stabilizer	1
FUSES			
F901 ⚠	XBA2C12TRO	Fuse 250V T1.25A	1
F902, 903 ⚠	XBA2C40TRO	Fuse 250V T4A	2
F904 ⚠	XBA2C10TRO	Fuse 250V T1A	1
THERMISTORS AND LAMPS			
TH801	ERTD2FHK202S	Thermister	1
TH802 ⚠	BE471TS	Posister 90°C	1
PL1 ⚠	KM16V110MA1	Lamp	1
COILS AND TRANSFORMERS			
L11N (R, L)	SLM9Z6-M	Filter	2
L101	SLD4N30-M	FM RF Coil	1
L102	SL04P28-P	FM OSC Coil	1
L103	RLQY15G5-0	RFC Coil	1
L201	SL02M16-M	MW OSC Coil	1
L202	SL01M10-M	LW OSC Coil	1
L203	SLQX250-Y	Choke Coil	1
L204, 205	SLF6F16-0	F. ANT Coil	1
L206	RLQY 15G5-0	RFC Coil	1
L401, 402	SLQU222-2Y	Rec. EQ Peak Coil	2
L403, 404	ELQ393D599G	Bias Trap Coil	2
L405 ~ 407	ELQ5A9R	RFC Coil	3
L801, 802	SLQU270-4Y	Choke Coil	2
L803	SL09Z38-K	Bias OSC Coil	1
L805	SLQU270-4Y	Coke Coil	1
T1	SLT5M176-V	Power Trans.	1
T101	RLI4M101	FM 1st IFT	1
T201	SLI7W104-M	AM CFT	1
T202	RLI2M402-M	AM 2nd IFT	1
T203	RLI4M501	FM Disc Coil	1
T204	RLI4M502	FM Disc Coil	1
CF201, 202	SVF107MA53	FM CFT	2
COMPONENT COMBINATIONS			
Z101	SXABFKB4	BPF	1
Z201	EXA5DL04CW	C-R	1
Z202	EXAF203Z471F	C-R	1
Z901, 902 ⚠	RXAF103Z22EY	C-C	2

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description		Per Set (pcs.)
VARIABLE RESISTORS				
VR11M	EVNM0AA00B53	Preset	5kΩB	1
VR12M	EVNK0AA00B13	Preset	1kΩB	1
VR13M	EVNJ0AA00B15	Preset	100kΩB	1
VR401, 402	EWCSDAF25B54	Rec. Level	50kΩB	1
VR403, 404	EVNK6AA00B24	Dolby Cal.	20kΩB	1
VR405, 406	EVNK6AA00B14	Rec. Cal.	10kΩB	1
VR501, 502	EWJS6AF21BF5	Main VR	250kΩB	1
VR503 ~ 506	EWCSCAF25C24	Tone	20kΩC	2
VR801	EVNJ0AA00B34	Bias OSC	30kΩB	1
VR802	EVNJ0AA00B14	Bias Cal.	10kΩB	1
VR803	EVNK6AA00B53	Bias Bal.	5kΩB	1
VR804	EVNK0AA00B24	VUCal.	20kΩB	1
VARIABLE CAPACITORS				
CV101, 102 201, 202 (CT101, 102)	SCVC A41J300	Tuning Capacitor with Trimmer		1
CT201 ~ 204	SCVCTY211D31	Trimmer		2
SWITCHES				
S1 ⚠	SSH134	Power		1
S2 ⚠	ESE37205	Voltage Selector		1
S401 ~ 404	SSR186	Tape Selector		1
S405, 406	SSH142	Ddby NR		1
S801	SSS114	Whistle Defeat		1
S802, SF1~6	SSH634	Function		1
ST1 ~ 14	ESD81575	Rec.		1
PACKING AND OTHERS				
PA1	SPN4688	Carton Box		1
PA2	SPN4690-2	Pad		1
PA3	XZBS95X75C05	Set Cover		1
1	SQX50374	Inst. Book (For SEV.OVE. FE.GFO)		1
1	SQX50380	Inst. Book (For DEM. SEM. VIM. FIM.)		1

Numbering System of Resistor

Type	Wattage	Tolerance	Value
Three Letters	One or Two Letters	Two or Three Letters	Three or Four Letters

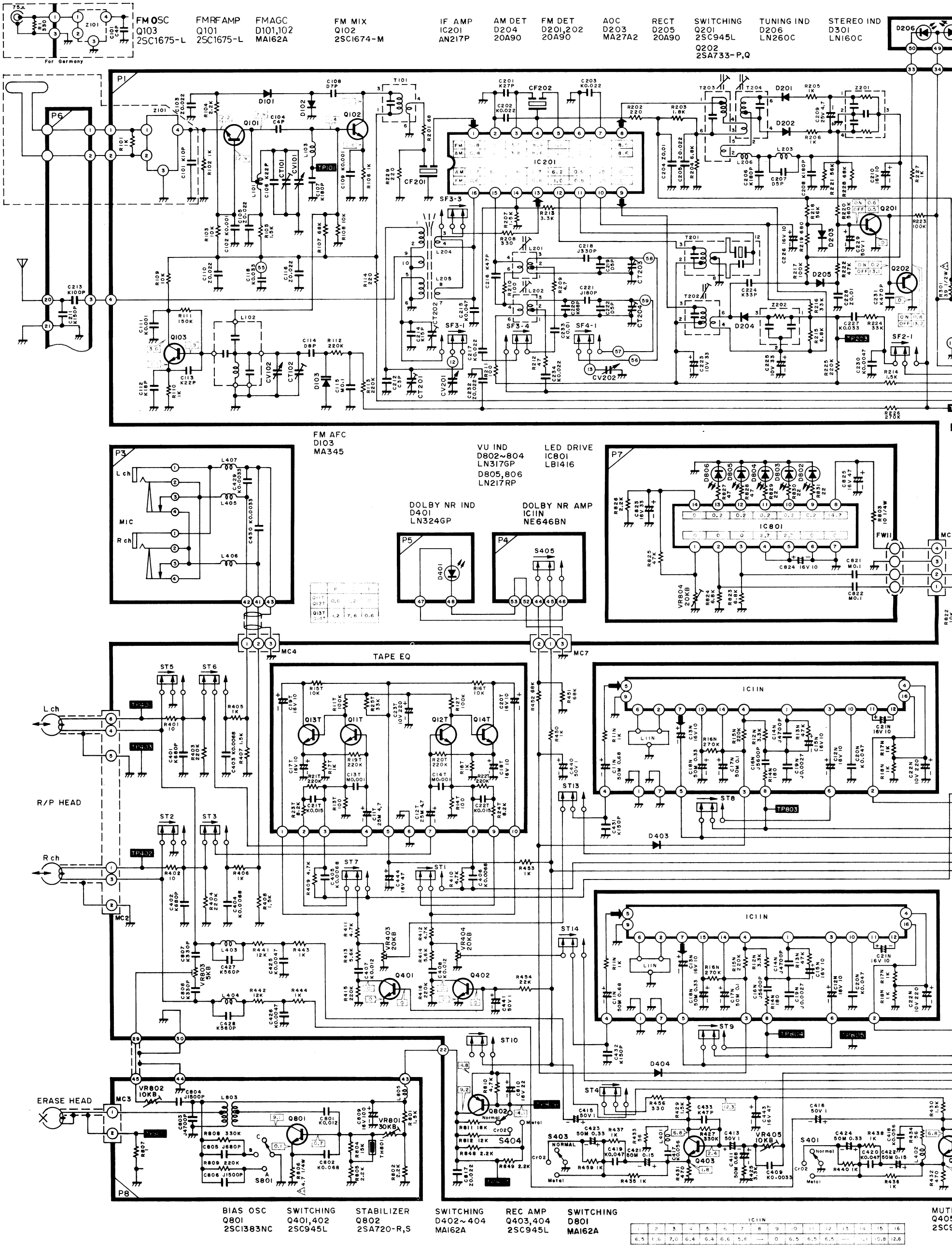
Example:

E R D 2 5 T J 1 0 1

Resistor Type	Tolerance
ERD: Carbon Film	F: ±1%
ERC: Solid	J: ±5%
ERX: Metal Film	K: ±10%
ERG: Metal Oxide Film	G: ±2%
ERO: High Stability Metal Film	
ERF: Flameproof Wire-Wound Bath-Tube	
ERQ: Fuse Type Metal Film	
RRD: Chip	

Ref. No.	Part No.	Description (Unit: Ω)		Per Set (pcs.)
RESISTORS				
R11H, 12H	RRD18XK102	1k	1/8W	2
R13H, 14H	RRD18XJ563	56k	1/8W	2
R15H, 16H	ERD25TJ104	100k	1/4W	2
R17H, 18H	RRD18XK821	820	1/8W	2
R19H, 20H	RRD18XK822	8.2k	1/8W	2
R21H, 22H	RRD18XK102	1k	1/8W	2
R23H, 24H	RRD18XK334	330k	1/8W	2
R25H, 26H	RRD18XK684	680k	1/8W	2
R27H, 28H	RRD18XK223	22k	1/8W	2
R29H	RRD18XJ333	33k	1/8W	1
R11M	RRD18XK102	1k	1/8W	1
R12M	RRD18XJ682	6.8k	1/8W	1
R13M	RRD18XJ103	10k	1/8W	1
R14M	RRD18XJ332	3.3k	1/8W	1
R15M, 16M	RRD18XJ392	3.9k	1/8W	2
R17M, 18M	RRD18XJ332	3.3k	1/8W	2
R20M	RRD18XJ103	10k	1/8W	1
R11N (R, L)	RRD18XK102	1k	1/8W	2
R12N (R, L)	RRD18XJ332	3.3k	1/8W	2
R13N (R, L)	RRD18XJ473	47k	1/8W	2
R14N (R, L)	RRD18XK181	180	1/8W	2
R15N (R, L)	RRD18XK224	220k	1/8W	2
R16N (R, L)	RRD18XJ274	270k	1/8W	2
R17N (R, L)	RRD18XK102	1k	1/8W	2
R18N (R, L)	RRD18XK102	1k	1/8W	2
R11T, 12T	ERD25TJ104	100k	1/4W	2
R13T, 14T	RRD18XK101	100	1/8W	2
R15T, 16T	RRD18XJ103	10k	1/8W	2
R17T, 18T	RRD18XK102	1k	1/8W	2
R19T, 20T	RRD18XK224	220k	1/8W	2
R21T, 22T	RRD18XK224	220k	1/8W	2
R23T, 24T	RRD18XK822	8.2k	1/8W	2
R25T	RRD18XJ333	33k	1/8W	1

SCHEMATIC DIAGRAM



• This diagram might be modified without notice for further development of technology.

DIAGRAM MODEL SG-2220

FM PLL MPX
IC11M
LA3350S

SWITCHING
D11M
MA162A

SWITCHING
Q301
2SC945L

MUTING
Q503,504
2SC945L

SWITCHING
Q803
2SC1383Q

SWITCHING
D207
MA162A

MUTING
Q405,406
2SC945L

PRE AMP
Q501,502
2SC1843

RECT
D901~904
92V20F

D905
SIRBA10F

STABILIZER
Q901
2SD836

STABILIZER
D906
RD16EB3

POWER AMP
IC701
STK457 MM

MUTING
D807,808
MA162A

MUTING
Q804
2SC945L

SCHEMATIC DIAGRAM
MODEL NO. SG-2220

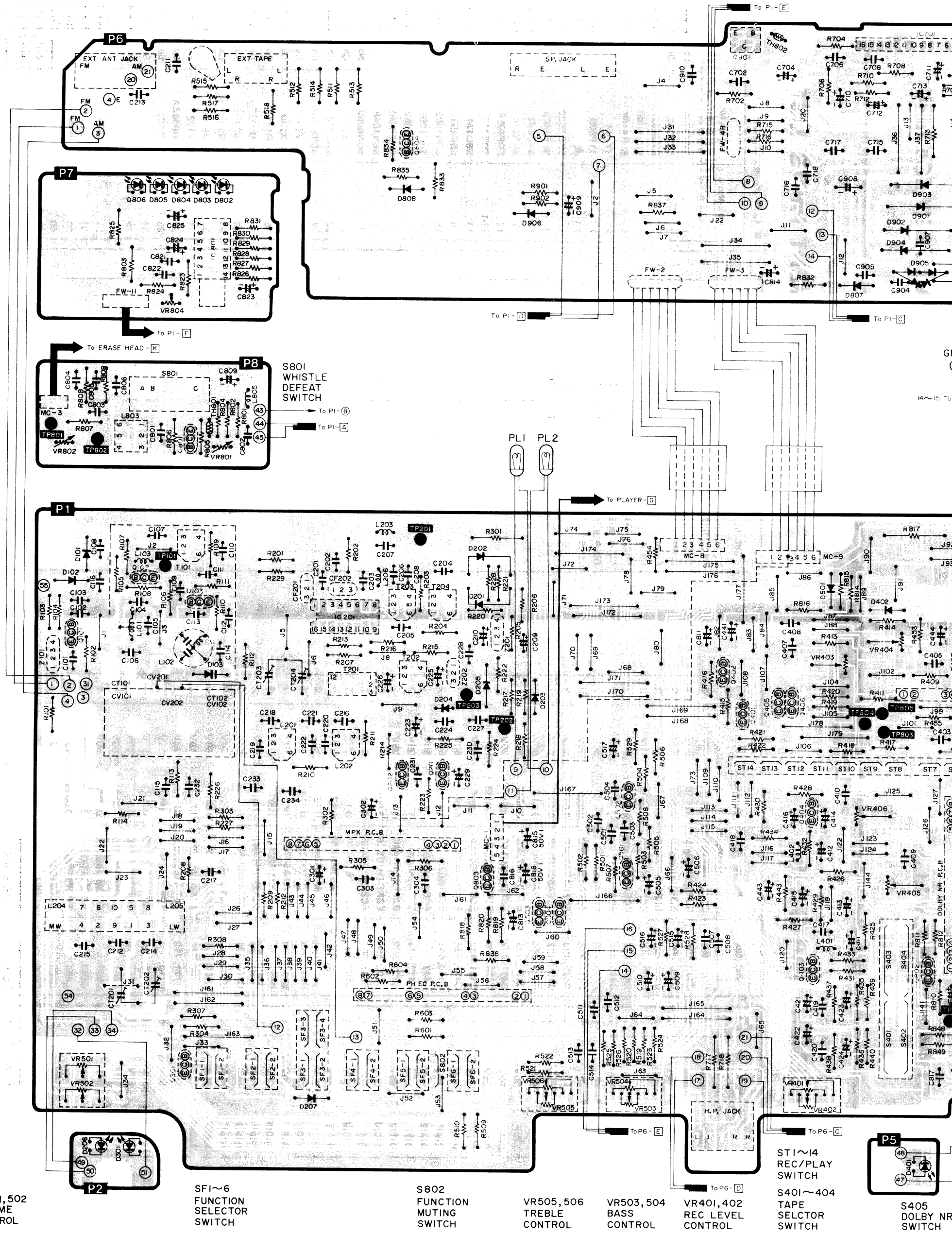
NOTES

- ▭ : Indicated DC voltage values in V.
- 1) S1 : POWER SWITCH in "OFF" position.
  - S2 : POWER VOLTAGE SELECTOR SWITCH in "220V" position.
  - S3 : PHONO MOTOR SWITCH in "OFF" position.
  - S4 : SPEED SELECTOR SWITCH in "33" position.
  - S5 : TAPE MOTOR SWITCH in "OFF" position.
  - S6 : PLAYBACK SWITCH in "OFF" position.
  - S401~404: TAPE SELECTOR SWITCH in "NORMAL" position.
  - S405 : DOLBY NR SWITCH in "OUT" position.
  - S801 : WHISTLE DEFEAT SWITCH in "A" position.
  - S802 : FUNCTION MUTING SWITCH in "OFF" position.
  - SF1~6 : FUNCTION SELECTOR SWITCH in "MW" position. (SF1. FM MONO/AUTO SF2. FM SF3. MW SF4. LW SF5. PHONO SF6. TAPE/MIC/AUX)
  - ST1~14 : REC/PLAY SWITCH in "PLAY" position.
- 2) Letters J,K,M,Z indicate tolerance of capacitors as follows. J=±5%, K=±10%, M=±20%, Z=+80% −20%
- 3) DC voltages are to be measured with DC VTVM under no signal condition in FM, AM position.

IMPORTANT SAFETY NOTICE

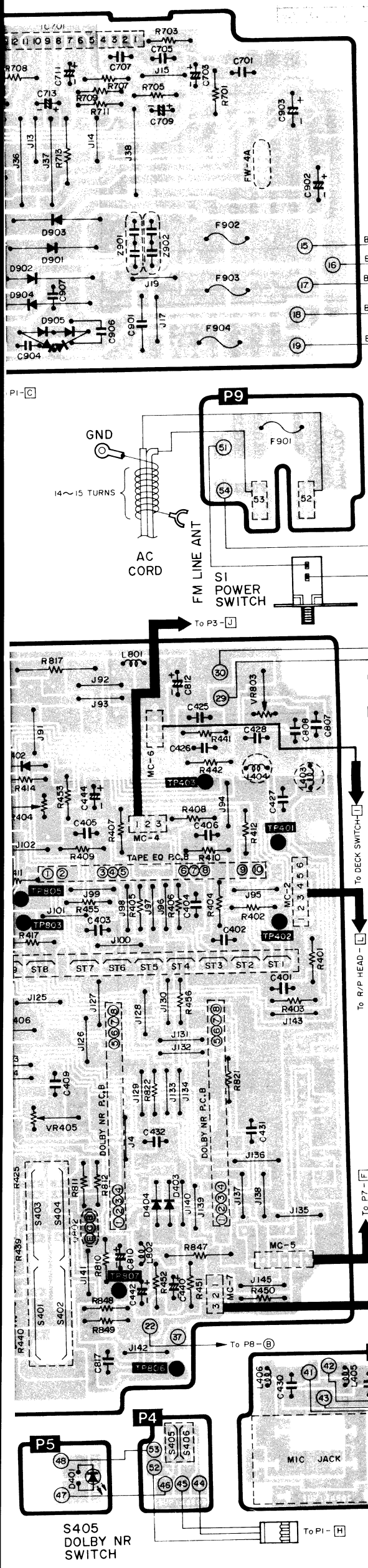
COMPORTANT IDENTIFIED BY ⚠ MARK HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY MANUFACTURER'S SPECIFIED PARTS.

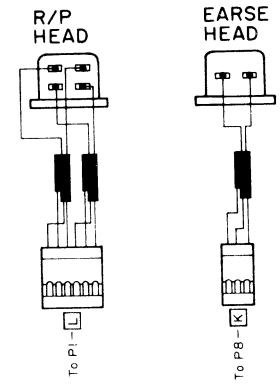
CIRCUIT BOARD AND WIRING CONNEC

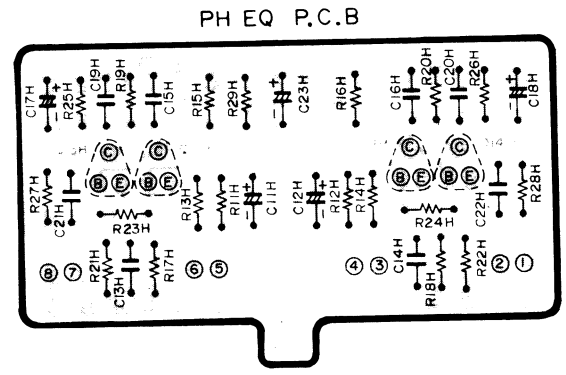


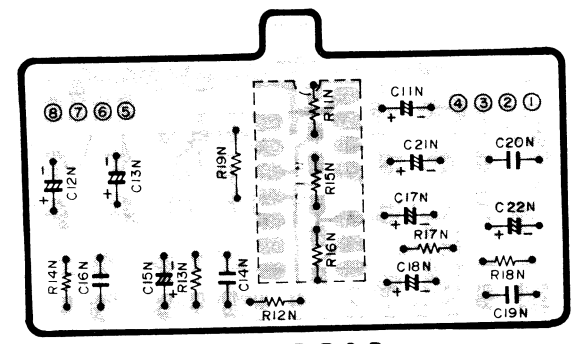
• This diagram might be modified without notice for further development of technology.

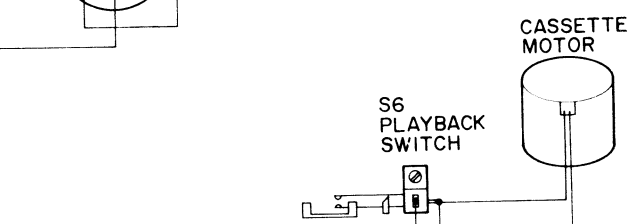
NNECTION MODEL SG-2220

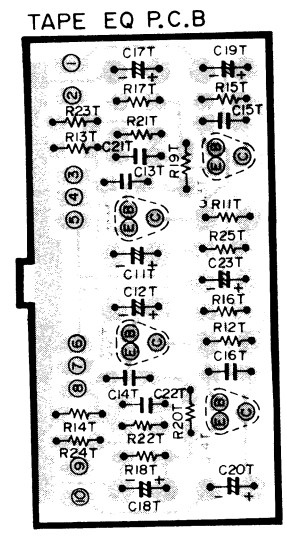


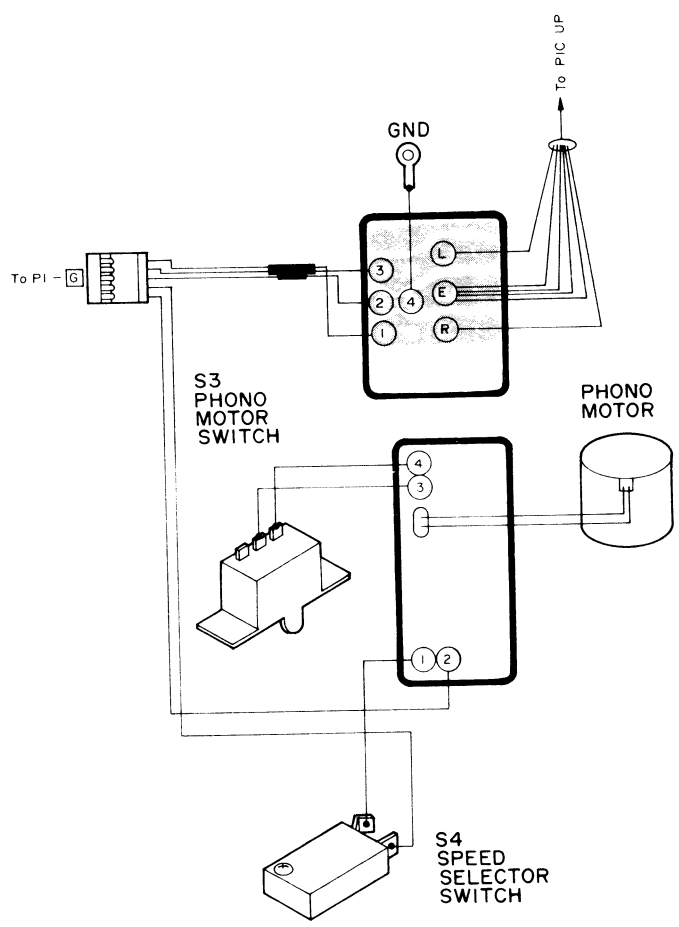


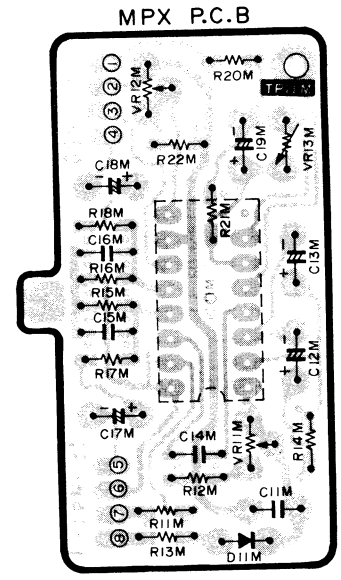












REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description (Unit: Ω)		Per Set (pcs.)
R101, 102	ERD25FJ102	1k	1/4W	2
R103	ERD25FJ103	10k	1/4W	1
R104	ERD25FJ222	2.2k	1/4W	1
R105	ERD25FJ152	1.5k	1/4W	1
R106	ERD25FJ102	1k	1/4W	1
R107	ERD25TJ683	68k	1/4W	1
R108, 109	ERD25FJ103	10k	1/4W	2
R110	ERD25FJ102	1k	1/4W	1
R111	ERD25TJ154	150k	1/4W	1
R112, 113	ERD25TJ224	220k	1/4W	2
R114	ERD25FJ221	220	1/4W	1
R201	ERD25FJ680	68	1/4W	1
R202	ERD25FJ221	220	1/4W	1
R203	ERD25FJ182	1.8k	1/4W	1
R204	ERD25FJ682	6.8k	1/4W	1
R205, 206	ERD25FJ102	1k	1/4W	2
R207	ERD25FJ152	1.5k	1/4W	1
R208	ERD25FJ331	330	1/4W	1
R209	ERD25FJ4R7	4.7	1/4W	1
R210, 211	ERD25FJ101	100	1/4W	2
R212	ERD25FJ470	47	1/4W	1
R213	ERD25FJ332	3.3k	1/4W	1
R214	ERD25FJ152	1.5k	1/4W	1
R215	ERD25FJ682	6.8k	1/4W	1
R216	ERD25TJ333	33k	1/4W	1
R217	ERD25TJ104	100k	1/4W	1
R218	ERD25TJ563	56k	1/4W	1
R219	ERD25FJ681	680	1/4W	1
R220	ERD25TJ564	560k	1/4W	1
R221	ERD25TJ 563	56k	1/4W	1
R222	ERD25TJ473	47k	1/4W	1
R223	ERD25TJ104	100k	1/4W	1
R224	ERD25TJ333	33k	1/4W	1
R225	ERD25TJ224	220k	1/4W	1
R226	ERD25TJ274	270k	1/4W	1
R227	ERD25FJ102	1k	1/4W	1
R228	ERD25TJ683	68k	1/4W	1
R229	ERD25FJ221	220	1/4W	1
R301 ⚠	ERQ12HJ390	39	1/2W	1
R302	ERD25FJ221	220	1/4W	1
R303	ERD25FJ332	3.3k	1/4W	1
R304	ERD25TJ334	330k	1/4W	1
R305, 306	ERD25TJ473	47k	1/4W	2
R307	ERD25TJ333	33k	1/4W	1
R308	ERD25FJ103	10k	1/4W	1
R401, 402	ERD25FJ100	10	1/4W	2
R403, 404	ERD25TJ 224	220k	1/4W	2
R405, 406	ERD25FJ102	1k	1/4W	2
R407, 408	ERD25FJ152	1.5k	1/4W	2
R409, 410	ERD25FJ472	4.7k	1/4W	2
R411, 412	ERD25FJ472	4.7k	1/4W	2
R413, 414	ERD25FJ562	5.6k	1/4W	2
R415, 416	ERD25TJ224	220k	1/4W	2

Ref. No.	Part No.	Description (Unit: Ω)		Per Set (pcs.)
R417, 418	ERD25TJ333	33k	1/4W	2
R419, 420	ERD25FJ103	10k	1/4W	2
R421, 422	ERD25FJ822	8.2k	1/4W	2
R423, 424	ERD25TJ473	47k	1/4W	2
R425, 426	ERD25TJ332	3.3k	1/4W	2
R427, 428	ERD25TJ334	330k	1/4W	2
R429, 430	ERD25FJ152	1.5k	1/4W	2
R431, 432	ERD25FJ471	470	1/4W	2
R433, 434	ERD25FJ560	56	1/4W	2
R435, 436	ERD25FJ102	1k	1/4W	2
R437, 438	ERD25FJ102	1k	1/4W	2
R439, 440	ERD25FJ102	1k	1/4W	2
R441, 442	ERD25TJ123	12k	1/4W	2
R443, 444	ERD25FJ102	1k	1/4W	2
R450	ERD25FJ102	1k	1/4W	1
R451, 452	ERD25TJ683	68k	1/4W	2
R453	ERD25FJ102	1k	1/4W	1
R454	ERD25TJ223	22k	1/4W	1
R455	ERD25FJ102	1k	1/4W	1
R456	ERD25FJ331	330	1/4W	1
R501, 502	ERD25FJ102	1k	1/4W	2
R503, 504	ERD25TJ335	3.3M	1/4W	2
R505, 506	ERD25FJ472	4.7k	1/4W	2
R507, 508	ERD25FJ681	680	1/4W	2
R509, 510	ERD25TJ333	33k	1/4W	2
R511, 512	ERD25TJ224	220k	1/4W	2
R513, 514	ERD25TJ104	100k	1/4W	2
R515, 516	ERD25TJ 393	39k	1/4W	2
R517, 518	ERD25FJ103	10k	1/4W	2
R519, 520	ERD25FJ681	680	1/4W	2
R521, 522	ERD25FJ121	120	1/4W	2
R523, 524	ERD25FJ332	3.3k	1/4W	2
R525, 526	ERD25FJ151	150	1/4W	2
R527, 528	ERD25FJ103	10k	1/4W	2
R529	ERD25FJ102	1k	1/4W	1
R601, 602	ERD25TJ183	18k	1/4W	2
R603, 604	ERD25TJ183	18k	1/4W	2
R701, 702	ERD25FJ102	1k	1/4W	2
R703, 704	ERD25TJ333	33k	1/4W	2
R705, 706	ERD25FJ471	470	1/4W	2
R707, 708	ERD25TJ333	33k	1/4W	2
R709, 710	ERD25FJ332	3.3k	1/4W	2
R711, 712	ERD25FJ102	1k	1/4W	2
R713 ⚠	ERQ12HJ101	100	1/2W	1
R715, 716	ERD25FJ100	10	1/4W	2
R717, 718	ERD50FJ221	220	1/2W	2
R801	ERD25FJ152	1.5k	1/4W	1
R802	ERD25FJ222	2.2k	1/4W	1
R803 ⚠	ERD2FCG100P	10	1/4W	1
R804	ERD25TJ153	15k	1/4W	1
R805	ERD25FJ222	2.2k	1/4W	1
R806 ⚠	ERD2FCJ4R7P	4.7	1/4W	1
R807	ERD25FJ1R0	1.0	1/4W	1

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description (Unit: Ω)		Per Set (pcs.)
R808	ERD25TJ334	330k	1/4W	1
R809	ERD25TJ224	220k	1/4W	1
R810	ERD25FJ472	4.7k	1/4W	1
R811	ERD25TJ183	18k	1/4W	1
R812	ERD25TJ123	12k	1/4W	1
R814	ERD25FJ472	4.7k	1/4W	1
R815	ERD25TJ474	470k	1/4W	1
R816	ERD25FJ682	6.8k	1/4W	1
R817 ⚠	ERQ12HJ100	10	1/2W	1
R818	ERD25FJ221	220	1/4W	1
R819	ERD25FJ103	10k	1/4W	1
R820	ERD25TJ153	15k	1/4W	1
R821, 822	ERD25FJ103	10k	1/4W	2
R823, 824	ERD25FJ682	6.8k	1/4W	2
R825	ERD25TJ473	47k	1/4W	1
R826	ERD25FJ222	2.2k	1/4W	1
R827, 828	ERD25FJ470	47	1/4W	2
R829, 830	ERD25FJ220	22	1/4W	2
R831	ERD25FJ220	22	1/4W	1
R832	ERD25TJ683	68k	1/4W	1
R833	ERD25FJ472	4.7k	1/4W	1
R834	ERD25TJ153	15k	1/4W	1
R835	ERD25TJ223	22k	1/4W	1
R836	ERD25FJ102	1k	1/4W	1
R837	ERD25TJ153	15k	1/4W	1
R847 ⚠	ERQ12HJ470	47	1/2W	1
R848, 849	ERD25FJ222	2.2k	1/4W	2
R850	ERD25TJ104	100k	1/4W	1
R901	ERD25FJ222	2.2k	1/4W	1
R902	ERD25FJ471	470	1/4W	1

Numbering System of Capacitor

Type	Voltage	Value	Tolerance
Four Letters	One or Two Letters	Two to Five Letters	One or Two Letters

Example: E C K D 1 H 3 3 3 M D

Capacitor Type	Tolerance
ECCD: Temperature Compensating Ceramic	C: ±0.25pF
ECKD: High Dielectric Constant Ceramic	D: ±0.5pF
ECQM: Polyester	F: ±1pF
ECQS: Polystyrene Film	J: ±5%
ECFD: Semiconductor Ceramic	K: ±10%
ECEA: Electrolytic	M: ±20%
ECEB: Electrolytic	P: +100, –0%
ECET: Electrolytic	Z: +80, –20%
ECSF: Tantalum	
ECUX: Chip	

Ref. No.	Part No.	Description (Unit: μF)		Per Set (pcs.)
CAPACITORS				
C11H, 12H	ECEA50Z1	1	50V	2
C13H, 14H	ECUX1H102MD	0.001	50V	2
C15H, 16H	ECUX1H470KC	47pF	50V	2
C17H, 18H	ECEA50Z1	1	50V	2
C19H, 20H	ECUX1H103MD	0.01	50V	2
C21H, 22H	ECUX1H332MD	0.0033	50V	2
C23H	ECEA1AS221	220	10V	1
C11M	ECQP1152JZ	0.0015	125V	1
C12M	ECEA50ZR47	0.47	50V	1
C13M	ECEA50ZR22	0.22	50V	1
C14M	ECUX1H473KR	0.047	50V	1
C15M, 16M	ECUX1H153KR	0.015	50V	2
C17M, 18M	ECEA50Z1	1	50V	2
C19M	ECEA50Z1	1	50V	1
C11N (R, L)	ECEA50MR1R	0.1	50V	2
C12N (R, L)	ECEA1HS100	10	50V	2
C13N (R, L)	ECEA1HS100	10	50V	2
C14N (R, L)	ECQM1H472JZ	0.0047	50V	2
C15N (R, L)	ECEA1HS100	10	50V	2
C16N (R, L)	ECQM1H562JZ	0.0056	50V	2
C17N (R, L)	ECEA50MR1R	0.1	50V	2
C18N (R, L)	ECEA50MR33R	0.33	50V	2
C19N (R, L)	ECQM1H273JZ	0.027	50V	2
C20N (R, L)	ECFD1E473KD	0.047	25V	2
C21N (R, L)	ECEA1HS100	10	50V	2
C22N (R, L)	ECEA1AS221	220	10V	2
C11T, 12T	ECEA25M4R7R	4.7	25V	2
C13T, 14T	ECUX1H102MD	0.001	50V	2
C17T, 18T	ECEA1HS100	10	50V	2
C19T, 20T	ECEA1HS100	10	50V	2
C21T, 22T	ECUX1H153MD	0.015	50V	2
C23T	ECEA1AS221	220	10V	1

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description (Unit: μF)		Per Set (pcs.)
C101	ECCD1H100F	10pF	50V	1
C102	ECKD1H102KB	0.001	50V	1
C103	ECKD1H223ZF	0.022	50V	1
C104	**ECCD1H040C**	**4pF**	50V	1
C105	ECKD1H223ZF	0.022	50V	1
C106	ECCD1H220K	22pF	50V	1
C107	ECKD1H181KB	180pF	50V	1
C108	ECCD1H070D	7pF	50V	1
C109	ECKD1H102KB	0.001	50V	1
C110	ECKD1H223ZF	0.022	50V	1
C111	ECKD1H102KB	0.001	50V	1
C112	ECCD1H180K	18pF	50V	1
C113	ECCD1H220K	22pF	50V	1
C114	ECCD1H080D	8pF	50V	1
C115	ECFD1E104MD	0.1	25V	1
C116	ECKD1H223ZF	0.022	50V	1
C118	ECFD1V333KD	0.033	35V	1
C201	ECCD1H270K	27pF	50V	1
C202, 203	ECFD1V223KD	0.022	35V	2
C204	ECKD1H103ZF	0.01	50V	1
C205	ECKD1H223ZF	0.022	50V	1
C206	ECKD1H181KB	180pF	50V	1
C207	ECCD1H050D	5pF	50V	1
C208	ECKD1H181KB	180pF	50V	1
C209	ECEA25Z4R7	4.7	25V	1
C210	ECEA1HS100	10	50V	1
C211	ECKD1H151KB	150pF	50V	1
C212	ECCD1H030C	3pF	50V	1
C213	ECCD1H101K	100pF	50V	1
C214	**ECCD1H150K**	15pF	50V	1
C215	ECFD1V473KD	0.047	35V	1
C216	ECCD1H470K	47pF	50V	1
C217	ECFD1V223KD	0.022	35V	1
C218	ECQS1331JZ	330pF	125V	1
C219	ECCD1H050D	5pF	50V	1
C220	ECCD1H680K	68pF	50V	1
C221	ECQS1181JZ	180pF	125V	1
C222	ECCD1H050D	5pF	50V	1
C223	ECEA1CS330	33	16V	1
C224	ECCD1H330K	33pF	50V	1
C225	ECEA1CS330	33	16V	1
C226	ECEA1HS100	10	50V	1
C227	ECFD1V333KD	0.033	35V	1
C228	ECKD1H103ZF	0.01	50V	1
C229	ECEA50Z1	1	50V	1
C230	ECKD1H102KB	0.001	50V	1
C231	ECKD1H471KB	470pF	50V	1
C232	ECKD1H223ZF	0.022	50V	1
C233	ECFD1V103KD	0.01	35V	1
C234	ECFD1V223KD	0.022	35V	1
C301	ECEA50Z1	1	50V	1
C302	ECEA1AS221	220	10V	1
C303, 304	ECKD1H821KB	820pF	50V	2

Ref. No.	Part No.	Description (Unit: μF)		Per Set (pcs.)
C401, 402	ECKD1H681KB	680pF	50V	2
C403, 404	ECFD1H682KD	0.0068	50V	2
C405, 406	ECFD1H682KD	0.0068	50V	2
C407, 408	ECFD1V123KD	0.012	35V	2
C409, 410	ECFD1H332KD	0.0033	50V	2
C411, 412	ECEA50MR68R	0.68	50V	2
C413, 414	ECEA50Z1	1	50V	2
C415, 416	ECEA50Z1	1	50V	2
C417, 418	ECFD1E563MD	0.056	25V	2
C419, 420	ECFD1V473KD	0.047	35V	2
C421, 422	ECEA50MR15R	0.15	50V	2
C423, 424	**ECEA50MR33R**	0.33	50V	2
C425, 426	ECFD1H472KD	0.0047	50V	2
C427, 428	ECKD1H561KB	560	50V	2
C429, 430	ECFD1H332KD	0.0033	50V	2
C431, 432	ECKD1H331KB	330pF	50V	2
C433, 434	ECCD1H470K	47pF	50V	2
C440, 441	ECEA50Z1	1	50V	2
C442	ECEA1HS100	10	50V	1
C443, 444	ECEA1ES470	47	25V	2
C501, 502	ECFD1E104MD	0.1	25V	2
C503, 504	ECKD1H102KB	0.001	50V	2
C505, 506	ECEA50MR68R	0.68	50V	2
C507, 508	ECFD1E104MD	0.1	25V	2
C509, 510	ECEA50MR47R	0.47	50V	2
C511, 512	ECQM1H124KZ	0.12	50V	2
C513, 514	ECFD1V273KD	0.027	35V	2
C515, 516	ECEA1AS470	47	10V	2
C517	ECEA1CS221	220	16V	1
C701, 702	ECKD1H151KB	150pF	50V	2
C703, 704	ECEA50M1R	1	50V	2
C705, 706	ECKD1H471KB	470pF	50V	2
C707, 708	ECCD1H100F	10pF	50V	2
C709, 710	ECEA1AS470	47	10V	2
C711, 712	ECEA1ES470	47	25V	2
C713	ECEA1ES101	100	25V	1
C715, 716	ECFD1E104MD	0.1	25V	2
C717, 718	ECFD1E104MD	0.1	25V	2
C801	ECQM1H123KZ	0.012	50V	1
C802	ECQM1H683KS	0.068	50V	1
C803	ECQP1472JZ	0.0047	125V	1
C804	ECQP1152JZ	0.0015	125V	1
C805	ECQS1681JZ	680pF	125V	1
C806	ECQP1152JZ	0.0015	125V	1
C807, 808	ECKD1H331KB	330pF	50V	2
C809	ECEA1ES101	100	25V	1
C810	ECEA1ES220	22	25V	1
C811	ECEA25Z4R7	4.7	25V	1
C812	ECEA1CS221	220	16V	1
C813	ECEA50Z1	1	50V	1
C814	ECEA1HS100	10	50V	1
C816, 817	ECKD1H223ZF	0.022	50V	2
C818	ECEA50Z1	1	50V	1

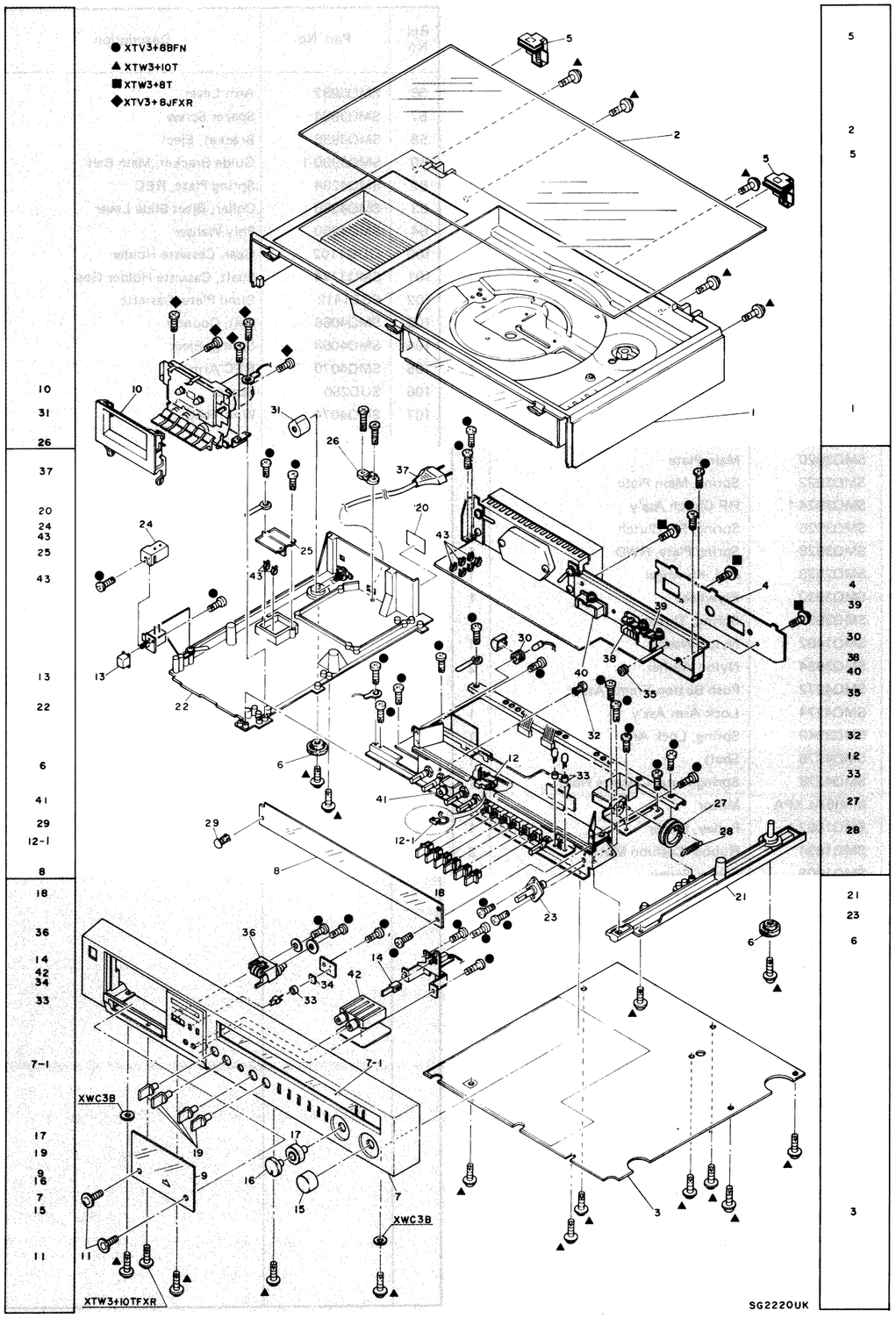
REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description (Unit: μF)		Per Set (pcs.)
C821, 822	ECFD1E104MD	0.1	25V	2
C823	ECEA1CS330	33	16V	1
C824	ECEA1HS100	10	50V	1
C825	ECEA1ES470	47	25V	1
C901 ⚠	ECQM1224MZ	0.22	125V	1
C902, 903 ⚠	ECEA1ES222	2200	25V	2
C904, 905	ECKD1H103ZF	0.01	50V	2
C906, 907	ECKD1H103ZF	0.01	50V	2
C908 ⚠	ECEA1VS102	1000	35V	1
C909	ECEAIES101	100	25V	1
C910	ECKD1H102ZF	0.001	50V	1

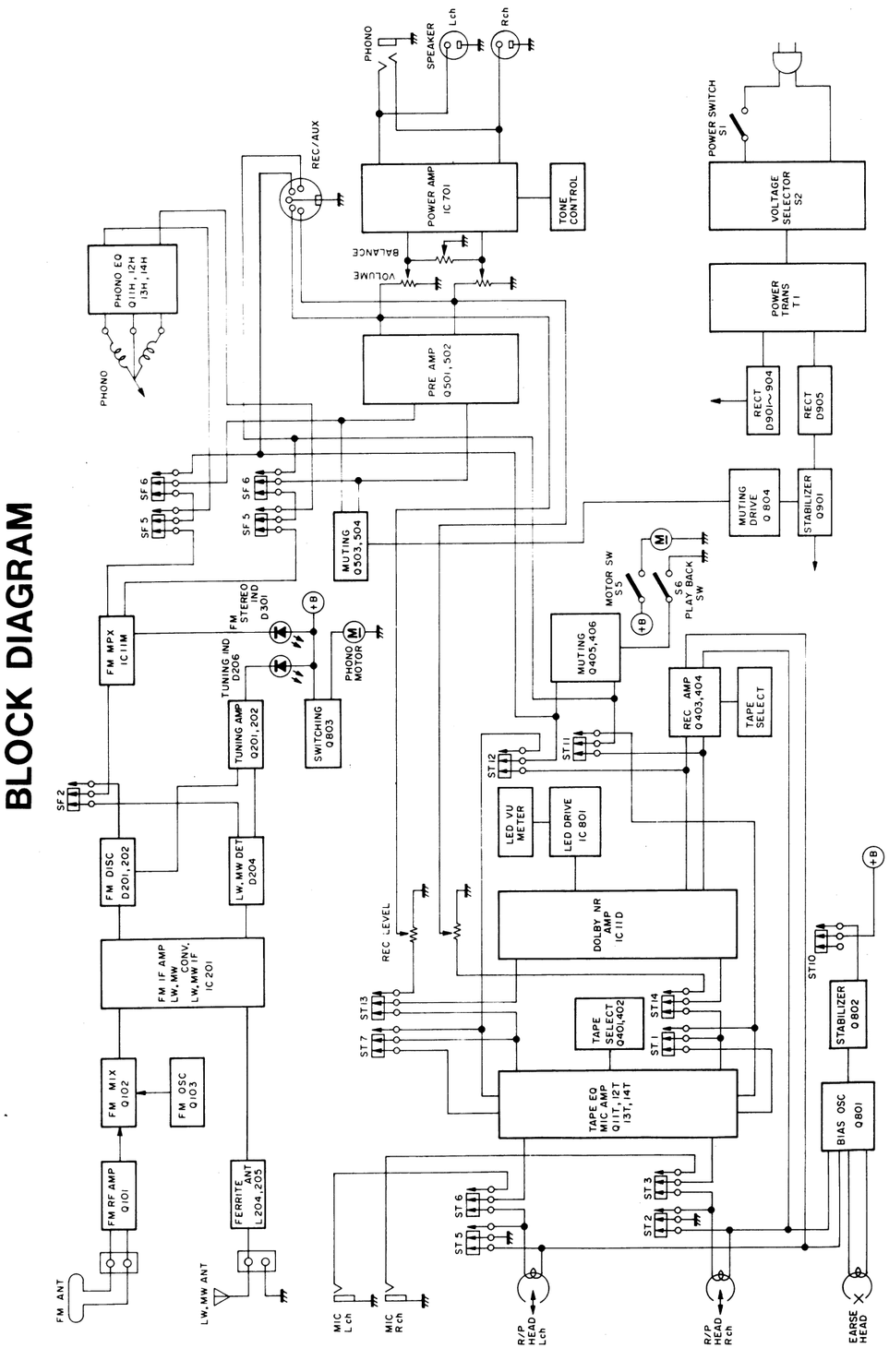
■ **Cabinet and Chassis**

Ref. No.	Part No.	Description	Per Set (pcs.)
1	SYK1906	Cabinet Ass'y	1
2	SYE918	Dust Cover Ass'y	1
3	SYU452	Bottom Board Ass'y	1
4	SKU5640	Rear Cover	1
5	SBH9106	Hinge Ass'y	2
6	SYL14	Foot	2
7	SYP600	Escutcheon Ass'y	1
7-1	SGW7080	Escutcheon	(1)
8	SKD5520	Dial Scale	1
9	SGE1400	Cassette Lid	1
10	SYE892	Cassette Holder Ass'y	1
11	SNE274	Ornament Screw	1
12	SDP1058-1	Dial Pointer Ass'y	1
12-1	SWE112	Lamp Ass'y	1
13	SBC474	Button, Power	1
14	SBC458	Button, Push	1
15	SBN1002	Knob, Tuning	1
16	SBN1050	Knob, Volume (L)	1
17	SBN1052	Knob, Volume (R)	1
18	QGO1693	Button, Push	6
19	SBN1048	Knob, Selector	4
20	SGN6060	Name Plate	1
21	SXE240	Chassis Ass'y (R)	1
22	SXE242	Chassis Ass'y (L)	1
23	SDT93506	Shaft, Tuning	1
24	SUV234	Cover, Power Switch	1
25	SMX230	Lid, Fuse Box	1
26	SHR134	Power Cord Clamp	1
27	RDD323ZA	Drum, Dial	1
28	RDS3090A	Spring, Dial	1
29	SHR9094	Latch	3
30	SHG9100	Rubber, Lamp	1
31	SUV172	Cover, Voltage Selector	1
32	RHR969ZA	Latch	2
33	SJY5162	Spacer, LED	3
34	SUD222	Spacer, LED	1
35	RHG3-1	Rubber, ANT	1
36	SMQ4064	Counter	1
37	SJA138	AC Power Cord	1
38	SJF9102	Jack, DIN 5P	1
39	SJS9408	Jack, DIN ANT	1
40	SJF9208	Jack, DIN SP	1
41	XCJS6PE6-1	Jack, Headphone	1
42	XCJS6PJ4	Jack, Microphone	1
43	SJF110	Holder, Fuse	8

PARTS LOCATION OF CABINET AND CHASSIS

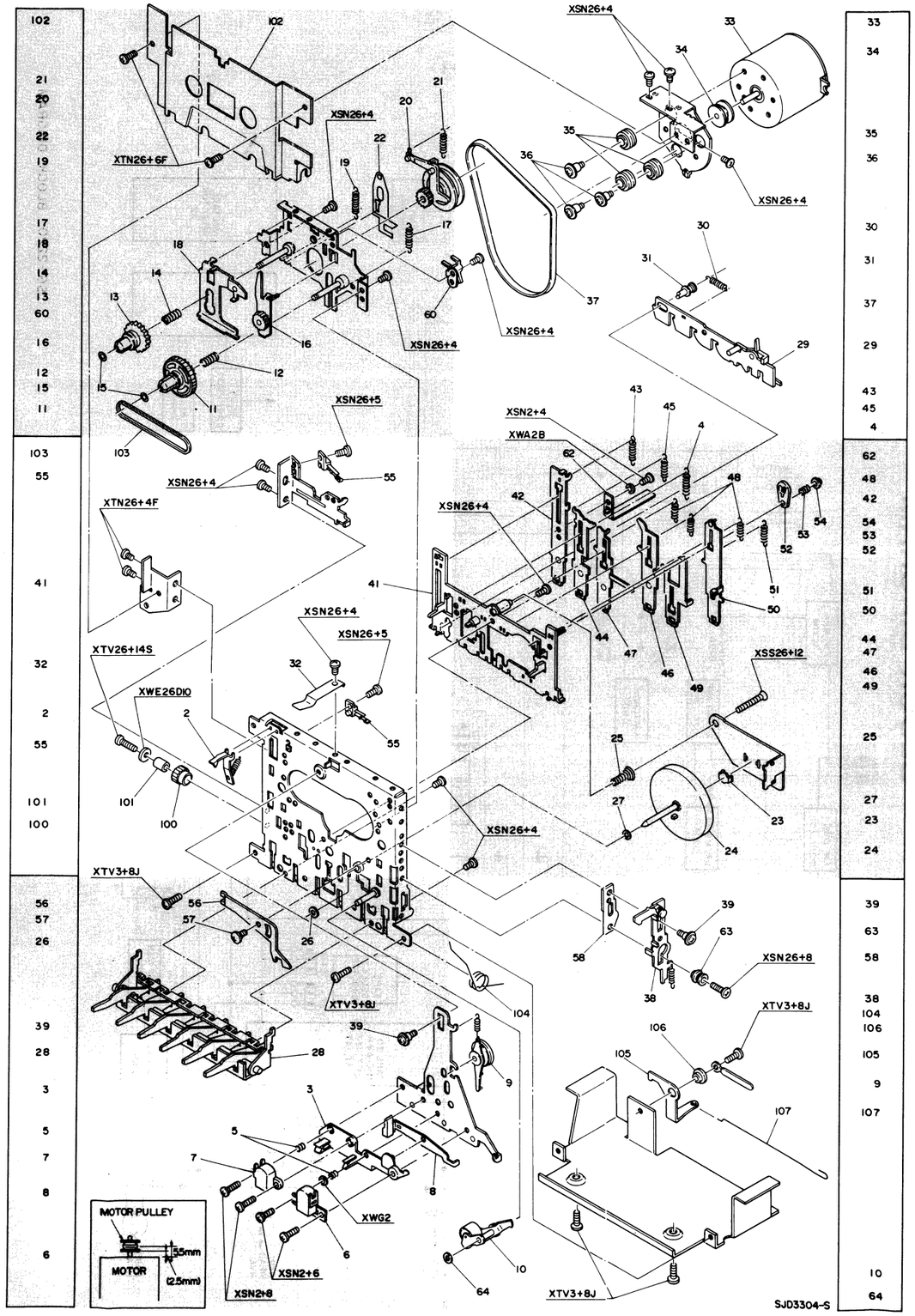


BLOCK DIAGRAM



SG-2220 BLOCK DIAGRAM

EXPLODED VIEW OF CASSETTE TAPE DECK (SJD3304-S)

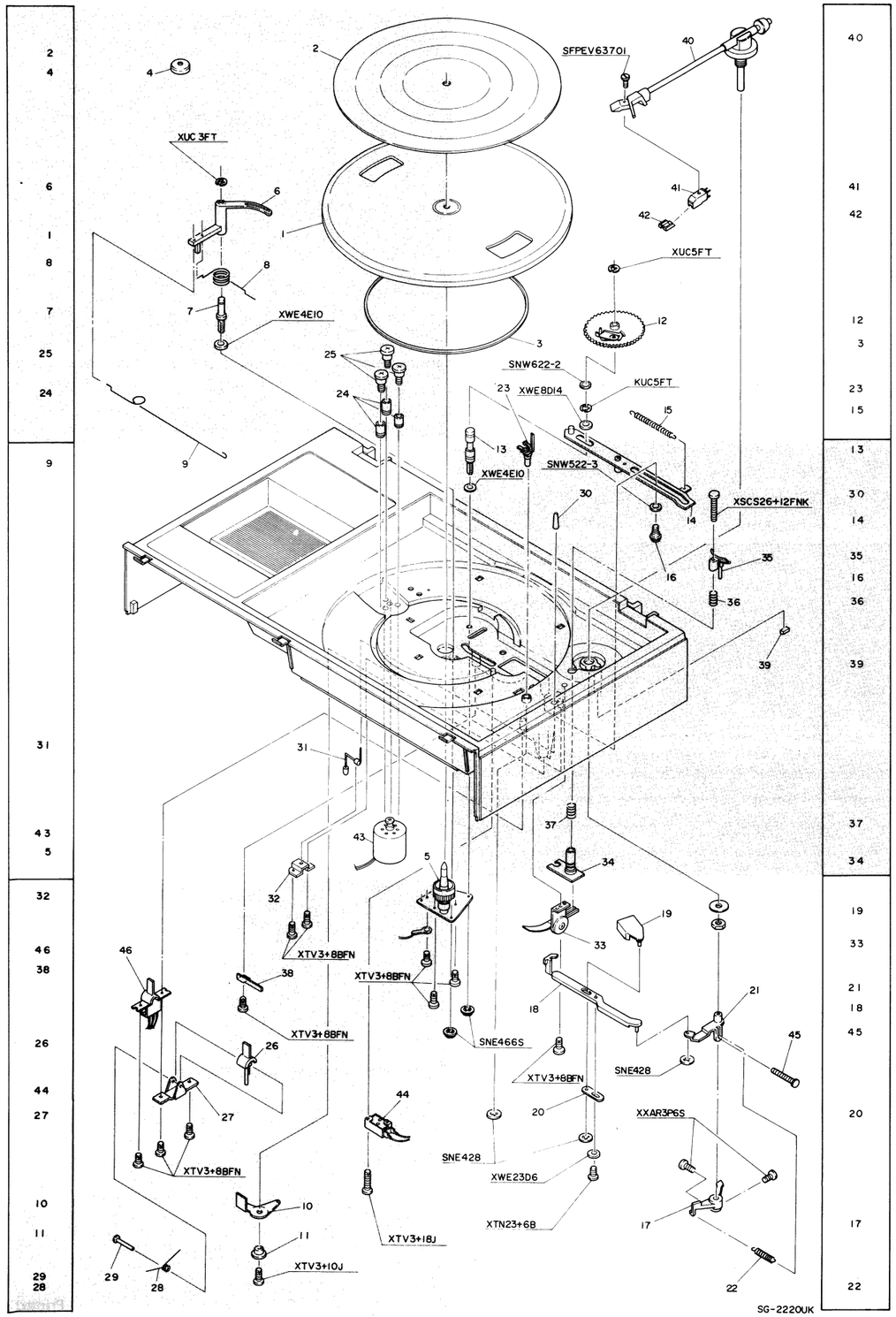


REPLACEMENT PARTS LIST CASSETTE TAPE DECK (SJD3304-S)

Ref. No.	Part No.	Description	Per Set (pcs.)
2	SMQ3892R	REC Safety Lever w/Spring	1
3	SMQ3894	Head Base	1
4	SMQ3896	Spring, RC	1
5	SMQ3898	Spring, Head	2
6	SJH60	R/P Head	1
7	SJH62	Erase Head	1
8	SMQ3900	Lever Ass'y, Auto Stop	1
9	SMQ4112	Take Up Roller Ass'y w/Spring	1
10	SMQ3904	Pinch Roller Ass'y	1
11	SMQ3906	Reel Ass'y, Take Up	1
12	SMQ3908	Spring, Take Up Reel	1
13	SMQ3910	Reel Ass'y, Supply	1
14	SMQ3912	Spring, Supply Reel	1
15	SMQ3914	Poly Washer	2
16	SMQ3916	FF Idler Arm Ass'y	1
17	SMQ3918	Spring, FF Idler Arm	1
18	SMQ3920	Main Plate	1
19	SMQ3922	Spring, Main Plate	1
20	SMQ3924-1	RF Clutch Ass'y	1
21	SMQ3926	Spring, RF Clutch	1
22	SMQ3928	Spring Plate, RWD	1
23	SMQ2538	Pad, Flywheel	1
24	SMQ3930	Flywheel	1
25	SMQ3932	Spring, Thrust	1
26	SMQ1402	Nylon Washer	1
27	SMQ3934	Nylon Washer	2
28	SMQ4272	Push Button Frame Ass'y	1
29	SMQ4274	Lock Arm Ass'y	1
30	SMQ3940	Spring, Lock Arm	1
31	SMQ4276	Shaft	1
32	SMQ4278	Spring Plate, Cassette Hold	1
33	MMI6ALKPA	Motor	1
34	SMQ1802-1	Pulley, Motor	1
35	SMQ1834	Rubber Cushion Motor	3
36	SMQ1908	Spacer Screw	3
37	SMQ2770	Main Belt	1
38	SMQ3948	Eject Slide Lever Ass'y w/Spring	1
39	SMQ3950	Spacer Screw	1
41	SMQ3954	Base, Push Button	1
42	SMQ3956	Slide Lever Ass'y, REC	1
43	SMQ3958	Spring, REC Slide Lever	1
44	SMQ3960	Slide Lever Ass'y, Play	1
45	SMQ3962	Spring, Play Slide Lever	1
46	SMQ4280	Slide Lever Ass'y, FF	1
47	SMQ4282	Slide Lever Ass'y, RWD	1
48	SMQ3968	Spring	3
49	SMQ3970	Slide Lever, Stop	1
50	SMQ3972	Slide Lever Ass'y, Pause	1
51	SMQ3974	Spring, Pause Slide Lever	1
52	SMQ2444	Click Lever, Pause	1
53	SMQ3976	Spring, Pause Click Lever	1
54	SMQ3978	Stopper, Pause Click Lever	1
55	SMQ3980	Leaf Switch	1

Ref. No.	Part No.	Description	Per Set (pcs.)
56	SMQ3982	Arm Lever	1
57	SMQ3984	Spacer Screw	1
58	SMQ3986	Bracket, Eject	1
60	SMQ3990-1	Guide Bracket, Main Belt	1
62	SMQ4284	Spring Plate, REC	1
63	SMQ4286	Collar, Eject Slide Lever	1
64	SMQ4260	Poly Wahser	1
100	QDG1102	Gear, Cassette Holder	2
101	SMQ3774	Shaft, Cassette Holder Gear	2
102	SGE1412	Blind Plate, Cassette	1
103	SMQ4066	Belt, Counter	1
104	SMQ4068	Spring, Eject	1
105	SMQ4070	REC Arm	1
106	SUD250	Spacer	1
107	SMQ4074	Wire, REC	1

EXPLODED VIEW OF RECORD PLAYER



REPLACEMENT PARTS LIST OF RECORD PLAYER

Ref. No.	Part No.	Discription	Per Set (pcs.)
1	SJY3022	Turntable	1
2	SJY4050	Turntable Mat	1
3	SFGB321-1	Turntable Belt	1
4	SGE263	EP Adapter	1
5	SJY394	Shaft Ass'y, Turntable	1
6	SJY9268	Reject Arm	1
7	SJY9376	Shaft, Reject Arm	1
8	SJY9266	Spring, Reject	1
9	SJY90086	Spring, Stop	1
10	SJY9872	Plate, Cut	1
11	SUD250	Spacer	1
12	SJY32-4	Main Gear Ass'y	1
13	SJY9392	Shaft, Main Gear	1
14	SJY178	Operating Plate Ass'y	1
15	SJY9062-1	Spring, Operating Plate	1
16	SJY9346	Screw, Operating Plate	1
17	SJY9016-3	Lever, Switch	1
18	SJY9042	Actuating Plate	1
19	SJY9044-1	Stop Plate, Switch	1
20	SJY9046	Bracket, Switch Control	1
21	SFUM623-4E	Lever, Torn Arm Plate	1
22	SJY9056-1	Spring, Torn Arm Plate	1
23	SJY342	Arm Rest	1
24	SHG9092	Rubber	3
25	SJY9168	Screw, Motor	3
26	SJY5192	Knob, Cut	1
27	SJY9874	Bracket, Cut	1
28	SJY9876	Spring, Cut	1
29	SJY9938	Shaft	1
30	SJY5050	Knob, Cueing	1
31	SJY390	Cueing Lever Ass'y	1
32	SJY9924	Bracket, Cueing Lever	1
33	SJY84-3	Sliding Board Ass'y	1
34	SJY9880	Shaft, Lift	1
35	SJY5122-1	Lifter	1
36	SJY9228	Spring A, Lifter	1
37	SJY9230	Spring B, Lifter	1
38	SJY9072	Spring	1
39	SHG916	Rubber, Clamp	1
40	EPA640SMAD	Torn Arm Ass'y with Washer and Nut	1
41	EPC77SMAD	Cartrige with Stylus	1
42	EPS75STCSD	Stylus	
43	MMC 4000	Motor with Motor Pulley	1
44	AH7550360	Micro Switch	1
45	VS3B20S	Screw, Tone Arm Plate	1
46	SSL66	Speed Select Switch	1

Ref. No.	Part No.	Description	Per Set (pcs.)

Note:

Printed in Japan
8108365 G

SG-2220

Technische Daten

VERSTÄRKERTEIL

Ausgangsleitstung:
- Musik; . . . . . 2 x 25W an 4 Ω (5% Klirr)
- Sinus; . . . . . 2 x 17W an 4 Ω (5% Klirr) bei Aussteuerung eines Kanäls; 2 x 13W an 4 Ω (5% Klirr) bei Aussteuerung beider Kanäle

Frequenzumfang: . . . . . 30 Hz bis 20 kHz, ±1.5 dB

Eingangsempfindlichkeit und Impedanz
- Reserve; . . . . . 250mV, 47 k Ω
- Mikrofon; . . . . . 1mV, 1.5k Ω

Aufnahmeausgang und Impedanz: . . 40mV, 82k Ω

Tonregler:
- Bass; . . . . . ±10 dB, bei 100 Hz
- Hochton; . . . . . ±10 dB, bei 10 kHz

UKW-TUNERTEIL

Frequenzbereich: . . . . . 87.5 MHz ~108 MHz
Zwichenfrequenz: . . . . . 10.7 MHz
Empfindlichkeit: . . . . . 2.5 μV (300 Ω, S/N 26 dB, MOD 40 kHz) (DIN)
1.8 μV (75 Ω, S/N 26 dB, MOD 40 kHz) (DIN)
* Die Antennen-Impedannz des in der Deutschland verkauften Modells beträgt 75 Ω.
Spiegelfrequenzdämpfung: . . . . . 40 dB (98 MHz)
Signal-Rauschpannungsabstand: 62 dB (bei 1 kHz, 60 dB, 40 kHz)
Klirrgrad: . . . . . MONO 0.5% (bei 1 kHz, 60 dB, 40 kHz)
STEREO 0.6% (bie 1 kHz, 60 dB, 40 kHz)
Stereo-Trennung: . . . . . 40 dB (bei 1 kHz, 60 dB, 40 kHz)
Trennschärfe: . . . . . 50 dB (bei 1 kHz, 60 dB, 40 kHz)

AM-TUNERTEIL

Empfangsbereiche: . . . . . MW; 525 kHz ~1605 kHz (571 m ~187 m)
LW; 150 kHz ~350 kHz (2000 m ~ 857 m)
Swischenfrequenz: . . . . . 450 kHz
Empfindlichkeit: . . . . . MW; 150μV/m (1 MHz)
LW; 250μV/m (240 kHz)
Spiegelfrequenzdämpfung: . . . . . MW; 45 dB (1 MHz)
MW; 40 dB (240 kHz)

PLATTENSPIELERTEIL

Plattenspieler: . . . . . Tonarm-Rückführautomatik, Riemenantrieb
Plattenteller: . . . . . 28 cm
Plattentellerdrehzahl: . . . . . 33-1/3 und 45 U/min., zwei Plattendrehzahlen
Geschwindigkeitsschwankungen: . . . ±0.2% (DIN WTD)
Phonomotor: . . . . . Gleichstrommotor
Tonabnehmer: . . . . . Drehmagnet (EPC-77SMAD)
Nadel: . . . . . Diamant (EPS-75STCSD)
Auflagekraft: . . . . . 3.5 g ±0.5 g
Frequenzumfang: . . . . . 20 Hz ~18 kHz
Übersprechdämpfung: . . . . . 15 dB (1 kHz)
Fremdspannungsabstand: . . . . . 55 dB (DIN-B)

TONBANDTEIL

Tonbandsystem: . . . . . Cassettensystem mit Ausschaltautomatik
Spursystem: . . . . . 4 Spuren, 2 Kanal
Aufnahmesystem: . . . . . Wechselstrom-Vormagnetisierung 50 kHz
Löschsystem: . . . . . Wechselstrom-Löschung 50 kHz
Bandlaufgeschwindigkeit: . . . . . 4.75 cm/sec. (1-7/8 i.p.s.)
Frequenzumfang: . . . . . 30 Hz ~ 15 kHz (Normal) } (DIN)
30 Hz ~ 15 kHz (CrO_2) } (DIN)
30 Hz ~ 16 kHz (Metal) } (DIN)
Rauschabstand: . . . . . Ohne Dolby; 53 dB (Normal) } (DIN)
55 dB (CrO_2) } (DIN)
56 dB (Metal) } (DIN)
Mit-dolby; 60 dB (Normal) } *
63 dB (CrO_2) } *
64 dB (Metal) } *
* (über 5 kHz um mehr als 10 dB verbessert) (DIN)
Gleichlaufschwankungen: . . . . . 0.15% (WRMS)
±0.3% (DIN WTD)

CONSOMMATION DE PUISSANCE: 100W

ALIMENTATION: . . . . . Cour. alt. 110V, 120V, 220V, 240V, 50/60 Hz

DIMENSIONS: (L x H x P)
Appareil principal: . . . . . 600 mm x 120 mm x 445 mm

POIDS
Appareil principal: . . . . . 10.5 kg

Les spécifications de le présentation sont susceptibes d'étre modifiées sans prévis par suite d'amélioration éventuelle de nos appareils.

ANWEISUNGEN ZUM ABGLEICH–1

■ **AM-Abgleich**

Hinweise:
1. Lautstärkeregler ..... Maximum (AM-IF und RF, FM-RF), Minimum (FM-IF).
2. Empfangsbereichschalter ..... LW, MW, FM AUTO, FM
3. Der Ausgang des Messoszillators sollte nicht höher als nötig sein um den Ausgangswert zu erhalten.
4. Sich vergewissern, ob die Lautsprecheranlage während des Abgleichs an den Tuner angeschlossen ist.

SCHRITTE	MESSOSZILLATOR order WOBBELGENERATOR		EINSTELLUNG DER ASBTIMM-SKALA	(AMZEIGE (RVM oder SKOP)	EINSTELLEN	BEMERKUNGEN
	ANSCHLUSS	FREQUENZ				
AM-ZF-ABGLEICH UND HF-ABGLEICH						
1 (AM)	Aux mehreren Draft-windungen eine Schleife bilden und das Signal in die Schleife des Receivers abstrahlen.	450 kHz 30% Mod. mit 400 Hz.	Punkt der Nicht-	Ausgangsmeβ-instrument über Lautsprecher-buchse (L).	T201 (AM-CFT) T202 (AM2 Zwischen-frequenz-Überträger)	• Auf maximalen Ausgang einstellen.
2 (LW)		150 kHz 30% Mod. mit 400 Hz	150 kHz		L205 (LW-Antennenspule) L202 (LW-Schwingspule)	• Auf maximalen Ausgang einstellen durch Ver-schieben der Spule L205 entlang dem Ferritkern. • Siehe Bemerkung.
3 (LW)		350 kHz 30% Mod. mit 400 Hz	350 kHz		CT202 (LW-Antennentrimmer CT204 (LW-Schwingtrimmer)	• Auf maximalen Ausgang einstellen. Schritte (2) und (3) wiederholen.
4 (MW)		550 kHz 30% Mod. mit 400 Hz	550 kHz		L204 (MW-Antennenspule L201 (MW-Schwingspule)	• Auf maximalen Ausgang einstellen durch Ver-schieben der Spule L204 entlang dem Ferritkern. • Siehe Bemerkung.
5 (MW)		1500 kHz 30% Mod. mit 400 Hz	1500 kHz		CT201 (MW-Antennentrimmer) CT203 (MW-Schwingtrimmer)	• Auf maximalen Ausgang einstellen • Schritte (4) und (5) wiederholen.
Bemerkung: Nach Abgleitch die Antennenwindungen L204, 205 mit Wachs zementieren.						
FM-IF-ABGLEICH						
1	Hohe Seite durch 5pF zu Punkt TP101 und TPE (Erde).	10.7 MHz (400 kHz SWP)	Punkt der Nicht-Interferenz (auf/gegen 98 MHz)	Vertikalen Ver-stärkereingang des Messoszilla-tors mit Punkt TP201 und TP202 (Erde) verbinden.	T101 (FM IFT) T203 (FM DISC)	◦ Auf maximale Amplitude und symetrische Kurve einstellen. • Siehe Bemerkung.
2					T204 (FM DISC) T203 (FM DISC)	• Auf maximale Amplitude und korrekte Linearität zwischen ± 100 kHz einstellen
Bemerkung: Vor Ausführung des Schrittes 1 die Kerne des T204 ganz gegen den Uhrzeigersinn drehen.						
FM-RF-ABGLEICH						
1	Über Hilfsantenne an EXT. FM-Antenne-anschluss anschlie-ssen. (300Ω)	87.35 MHz 30% Mod. mit 400 Hz	87.35 MHz	Ausgangsmeter über Laut-sprecherbuchse (L).	L102 (FM OSC)	◦ Auf maximalen Ausgang einstellen
		90 MHz 30% Mod. mit 400 Hz	90 MHz		L101 (FM RFT)	
2		106 MHz 30% Mod. mit 400 Hz	106 MHz		CT101 (FM ANT Trimmer)	◦ Auf maximalen Ausgang einstellen. • Schritte (1) und (2) wieder holen.
		108.3 MHz 30% Mod. mit 400 Hz	108.3 MHz		CT102 (FM OSC Trimmer)	

Hinweise:
1. **Da drei Ausgangsanzeigen vorhanden sind, müssen die Einstellungen an der Mittenfrequenz vorgenommen werden.**
2. **Um das Driften im UKW-Bereich (87.5 oder 108 MHz) zu berichtigen, ist die Spule L102 und der Trimmer CT102 einzustellen.**

INSTRUCTIONS D'ALIGNMENT–2

■ **Alignment stéréo FM**

Position des commandes:

Contrôle de volume . . . . . Niveau normal d'écoute
Contrôle des aiguës . . . . . En position centrale
Contrôle des graves . . . . . En position centrale
Réglage de balance . . . . . En position centrale
Sélecteur de source . . . . . FM
Mode FM . . . . . AUTO

BRANCHEMENT DES APPAREILS DE MESURE	RÉGLAGE	REMARQUES
Connector le fréquencemètre à TP11M et TP202 (masse) à 98 MHz, entrée non modulée de 60 dB (signal mono)	VR11M	Régler VR11M pour obtenir une lecture de 19 kHz ± 100 Hz au fréquencemètre.

ALIGNMENT DE LA SÉPARATION

Remarques:
1. Modulateur stéréo: Conneetor le modulateur stéréo à la borne Mod. Ext. du générateur de signaux.
2. Générateur de signaux: Taux de modulation du signal pilote de 19 kHz 9%
   Taux de modulation des signaux gauche et droit ..... 30% (1 kHz)
   Niveau de sortie ..... 60 dB
3. Tuner Réglér le Réglage, de balance de sorte que la sortie des deux canaux soit égale.

BRANCHEMENT DES APPAREILS DE MESURE			RÉGLAGE	REMARQUES
GENERATEUR DE SIGNAUX	VOLTMETRE ELECTRONIQUE	OSCILLOSCOPE		
Connecter à la borne d'antenne EXT. FM par l'intermédiaire de l'antenne fictive. (300Ω)	Connecter à la prise de haut-parleur. (Imp. 4Ω)	Connecter l'entrée d'ampli vertical de l'oscilloscope à la pruse de voltmetre éleotronique.	VR12M (Réglage de séparation).	Régler VR12M pour obtenir une indication minimale au voltmètre électronique depuis la sortie du côté gauche quand le côté droit du modulateur stéréo est modulé. Régler VR12M de la même manière que pour le côté droit. Régler de façon à obtenir l'équilibrage optimal entre séparation "L à R" (gauche à droite) et "R à L" (droite à gauche).

Remarque: Pour la mise au point de la séparation, il faut débrancher le fréquencemètre.

■ **Alignment du magnétophone à cassette**

ALIGNMENT DE PRÉMAGNÉTISATION

Positions des commandes:
1. Magnéto-cassette ..... Dans le mode enregistrement
2. Commutateur Dolby ..... OUT
3. Commutateur anti-sifflement . . . . . Côté B

OPÉRATION	ARTICLE DE ALIGNMENT	CONNEXION DU VTVM		SELECTEUR DE BANDE	REGLAGE	REMARQUES
		Positif	Négatif			
1	Polarisation d'effacement	TP801	TP802	METAL	VR801	Régler VR801 pour obtenir une indication de 150 ±5mV sure le VTVM.
2	Polarisation d'enregistrement	TP401 (Canal D) TP402 (Canal G)	TP403	NORMAL	VR803 VR802	• Régler VR803 à la même tension • Régler VR802 pour obtenir une indication de 3,8±0,1 mV sur le VTVM.

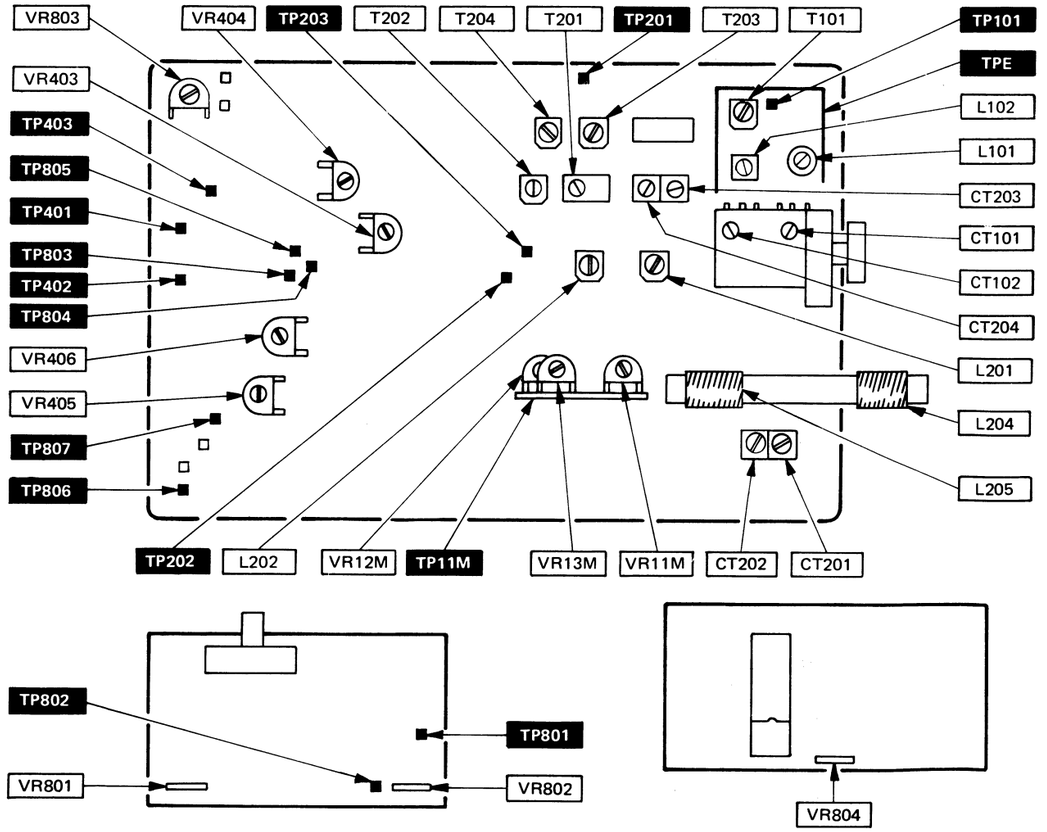
INSTRUCTIONS D'ALIGNMENT–3

ALIGNMENT AZIMUT, DOLBY, COURANT REC, VU METRE

Positions des commandes:
1. Magneto-cassette ..... Mode de lecture
2. Sélecteur de bande ..... NORMAL

OPÉRATION	ARTICLE DE ALIGNMENT	CONNEXION DU VTVM		BANDE D'ESSAI	COMMUTATEUR DOLBY	REGLAGE	REMARQUES
		Positif	Négatif				
1	Azimut de la téte E/L	Borne de haut-parleur	Borne de haut-parlent	10 kH –5 dB	OUT	Vis de tête	Régler la vis pour obtenir l'indication maximum du VTVM.
2	Niveau de Dolby	TP803 (Canal D) TP804 (Canal G)	TP805	400 Hz 200nWb/m	IN	VR403 VR404	Régler VR403 et VR404 pour obtenir une indication de 580 ± 20 mV Sur le VTVM.
3	Courant d'enregistrement	TP401 (Canal D) TP402 (Canal G)	TP403	–	IN	VR405 VR406	• Connecter TP806 et TP807. • Appliquer 1 kHz, 300 mV à AUX IN et réqler le Volume du niveau d'enregistrement au niveau du Dolby. • Régler VR405 et VR406 Pour obtenir une indication de 0,58 ± 0,02 mV Sur le VTVM.
4	VU-mèture	Pas Connecté		400 Hz 200nWb/m	IN	VR804	Régler VR804 pour un éclairage à +3VU (Repère ◻◻)

POINTS D'ALIGNMENT



SG-2220

Caracterstiques

SECTION AMPLIFICATEUR

Puissance de sortie: . . . . . 2 x 25W (DHT 5%, 4Ω) PSM
2 x 17W (DHT 5%, 4Ω) EFF.
Un canal en fonction.
2 x 13W (DHT 5%, 4Ω) EFF.
Deux canaux en fonction.
Réponse de fréquence: . . . . . 30 Hz ~ 20 kHz, ±1.5 dB
Sensibilité d'entrée et impédance:
Aux; . . . . . 250mV, 47k Ω
Micro; . . . . . 1mV, 1,5k Ω
Impédance et sortie enr : . . . . . 40mV, 82k Ω
Contrôle de tonalité:
Tonalité grave: . . . . . ±10 dB, à 100 Hz
Tonalité aiguë: . . . . . ±10 dB, à 10 kHz

SECTION TUNER FM

Echelle de fréquence: . . . . . 87,5 MHz ~ 108 MHz
Fréquence intermédiaire (FI): . . . . . 10,7 MHz
Sensibilité: . . . . . 2,5μV (300Ω, S/N 26 dB, MOD 40 kHz) (DIN)
Rendement présélecteur: . . . . . 40 dB (98 MHz)
Rapport de signal à bruit: . . . . . 62 dB (à 1 kHz, 60 dB, 40 kHz)
Distortion: . . . . . 0.5%(MONO) (à 1 kHz, 60 dB, 40 kHz)
0.6% (STEREO) (à 1 kHz, 60 dB, 40 kHz)
Séparation Stéréo: . . . . . 40 dB (à 1 kHz, 60 dB, 40 kHz)
Sélectivité: . . . . . 50 dB (à 1 kHz, 60 dB, 40 kHz)

SECTION TUNER AM

Echelle de fréquence: . . . . . PO; 525 kHz ~ 1605 kHz (571 m ~ 187 m)
GO; 150 kHz ~ 350 kHz (2000 m ~ 857 m)
Fréquence intermédiaire (FI): . . . . . 450 kHz
Sensibilité: . . . . . PO; 150μV/m (1 MHz)
GO; 250μV/m (240 kHz)
Rendement Présélecteur: . . . . . PO; 45 dB (1 MHz)
GO; 40 dB (240 kHz)

SECTION TOURNE-DISQUE

Système du tourne-disque: . . . . . Retour automatique, entraînement par courroie
Tourne-disque: . . . . . 28 cm
Vitesses du plateau: . . . . . 33-1/3 et 45 t/mn, deux vitesses
Pleurage et scintillement: . . . . . ±0,2% (DIN WTD)
Phonomoteur: . . . . . Moteur Cour. Cont. à régulateur électronique
Cartouche: . . . . . Aimant mobile (EPC-77SMAD)
Pointe de lecture: . . . . . Diamant (EPS-75STCSD)
Pression de pointe: . . . . . 3,5 g ±0,5 g
Réponse de fréquence: . . . . . 20 Hz ~ 18 kHz
Séparation: . . . . . 15 dB (1 kHz)
Rapport de signal/bruit: . . . . . 55 dB (DIN-B)

SECTION MAGNETOPHONE

Système de magnétophone: . . . . . Système à cassette automatique
Système de piste: . . . . . 4 pistes, 2 canaux
Système d'enregistrement: . . . . . Polarisation Cour. alt. (50 kHz)
Système d'effacement: . . . . . Effacement Cour. alt. (50 kHz)
Vitesse de bande: . . . . . 4,75 cm/s (1-7/8 i.p.s.)
Réponse de fréquence: . . . . . 30 Hz ~ 15 kHz (Normal)
30 Hz ~ 15 kHz (CrO_2) } (DIN)
30 Hz ~16 kHz (Metal)
Rapport de signal à bruit: . . . . . DOLBY NR-SORTIE; 53 dB (Normal)
55 dB (CrO_2) } (DIN)
56 dB (Metal)
DOLBY NR-ENTREE; 60 dB (Normal)
63 dB (CrO_2) } *
64 dB (Metal)
* (10 dB ou mieux à plus de 5 kHz) (DIN)
Pleurage et scintillement: . . . . . 0.15% (WRMS)
±0,3% (DIN WTD)

LEISTUNGSAUFNAHME: 100W

STROMVERSORGUNG: . . . . . Wechselstrom 110V, 120V, 220V, 240V, 50/60 Hz

ABMESSUNGEN: (B x H x T)
Mittelteil: . . . . . 600 mm x 120 mm x 445 mm

GEWICHT
Mitteleinheit: . . . . . 10.5 kg

Änderungen der technischen Daten und des Designs im Sinne ständiger Verbesserung vorbehalten.

INSTRUCTIONS D'ALIGNMENT–1

■ **Alignment AM**

Position des commandes:

1. Re'glage de volume ..... Au maximum (AM-IF et RF, FM-RF; au minimum (FM-IF).
2. Sélecteur de fonctions ..... LW, MW, FM MONO, FM.
3. La sortie du générateur de signaux ne doit pas être supérieure à celle nécessaire pour obtenir la lecture de sortie.
4. S'assurer que les enceintes sont raccordées au récepteur quand on effectue la mise au point.

ETAPE	GENERATEUR DE SIGNAUX ou DE BALAYAGE		POSITION DU CURSEURSUR LE CADRAN	INDICATEUR VOLTMETRE ou OSCILLOSCOPE	RÉGLAGE	REMARQUES
	CONNEXION	FREQUENCE				
ALIGNMENT DE F.I. ET H.F. EN AM						
1 (AM)	Façonner une boucle de quelques tours de fil et rayonner le signal dans la boucle du récepteur.	450 kHz modulé à 30% sur 400 Hz	Point de non interférence	Voltmètre sur la prise du haut-parleur gauche (L)	T201 (AM CFT) T202 (2ème IFT sur AM)	• Régler pour une sortie maximale.
2 (LW)		150 kHz modulé à 30% sur 400 Hz	150 kHz		L205 (Bobine d'antenne GO) L202 (Bobine de l'oscillateur GO)	◦ Régler pour une sortie maximale en déplacant la bobine L205 sur le noyau de ferrite. • Se référer aux remarques
3 (LW)		350 kHz modulé à 30% sur 400 Hz	350 kHz		CT202 (Trimmer d'antenne GO) CT204 (Trimmer de l'oscillateur GO)	• Régler pour une sortie maximale. Répéter les étapes (2) et (3).
4 (MW)		550 kHz modulé à 30% sur 400 Hz	550 kHz		L204 (Bobine d'antenne OM) L201 (Bobine de l'oscillateur OM)	• Régler pour une sortie maximale en déplacant la bobine L204 sur le noyau de ferrite. Se référer aux remarques.
5 (MW)		1500 kHz modulé à 30% sur 400 Hz	1500 kHz		CT201 (Trimmer d'antenne QM) CT203 (Trimmer de l'oscillateur QM	• Régler pour une sortie maximale. Répéter les étapes (4) et (5).

Remarque: Cimenter la bobine d'antenne L205, 204 à la cire après avoir terminé la mise au point

ALIGNMENT DE F.I. EN FM

1	Câté haut a tension par 5pF au point TP101 et TPE (masse).	10.7 MHz (400 kHz SWP)	Point de non-interférence (en circuit/environ 98 MHz)	Connecter l'entrée d'amp. vert. de l'oscilloscope au point TP201 et TP202 (masse).	T101 (FM IFT) T203 (FM DISC)	• Régler pour obtenie une amplitude maximale et une courbe symétrique. • Se référer aux remarques.
2					T204 (FM DISC) T203 (FM DISC)	• Régler pour obtenir amplitude maximale et la linéarité convenable entre les marqueurs d'environ ± 100 kHz.

Remarque: Avant de procéder à la mise au point dans étape 1, tourner les noyaux de T204 à fond dans le sens contraire des aiguilles d'une montre.

ALIGNMENT DE H.F. EN FM

1	Connecter la borne d'antenne EXT. FM par l'antenne fictive. (300Ω)	87.35 MHz modulé à 30% sur 400 Hz	87.35 MHz	Voltmètre sur la prise du haut-parleur gauche (L).	L102 (FM OSC)	• Régler pour obtenir une sortie maximale.
		90 MHz modulé à 30% sur 400 Hz	90 MHz		L101 (FM RFT)	
2		106 MHz modulé à 30% sur 400 Hz	106 MHz		CT101 (Trimmer FM ANT)	• Régler pour obtenir une sortie maximale • Répéter les étapes (1) et (2).
		108.3 MHz modulé à 30% sur 400 Hz	108.3 MHz		CT102 (Trimmer FM OSC)	

Remarques: 1. Du fait de la présence de trois lectures de sortie, les réglages doivent être effectués à la fréquence centrale.
2. Pour corriger la dérive de couverture de la game FM (87.5 ou 108 MHz), régler la bobine L102 et le trimmer CT102

ANWEISUNGEN ZUM ABGLEICH–2

■ UKW-Stereoabgleich

Einstellungen:

Tuner: Lautstärkeregler . . . . . Hörpegel des Lautsprechertons
Höhenregler . . . . . Mitte
Tiefenregler . . . . . Mitte
Balanceregler . . . . . Mitte
Empfangsbereich-Wähler . . . . FM
UKW-Betrieb . . . . . AUTO

GERÄTEANSCHLUSS	EINSTELLEN	BEMERKUNGEN
Frequenzzähler an TP11M und TP202 (Erde) bei 98 Mz anschlie Ben, Nicht-Modulation 60 dB Eingang (Mono-Signal)	VR11M	VR11M auf dem Signalfrequenzmesser auf 19 kHz ±100 Hz einstellen.

TRENNUNGSABGLEICH

Bemerkungs:
1. Stereomodulator: Stereomodulator an EXT. Mod. -Klemme des Messoszillators anschliessen.
2. Messoszillator: Modulationsgeschwindigkeit des 19 kHz Pilottones 9%
   Modulationsgeschwindigkeit des rechten und linken Signals ..... 30% (1 kHz)
   Ausgangspegel ..... 60 dB
3. Tuner (Balanzeregler): Balanceregler so einstellen, dass die beiden Kanäle gleich sind.

GERÄTEANSCHLUSS			EINSTELLEN	BEMERKUNGEN
MESSOSZILLATOR	RVM	OSZILLOSKOP		
Über Hilfsantenne mit EXT. FM-Antennen-klemme verbinden. (300Ω)	Über Laut-sprecher-buchse anschliessen. (Imp. 4Ω)	Vertikalen Verstärkereingang des Oszilloskops mit RVM-Klemmen verbinden.	VR12M (Trennregler)	VR12M auf minimale RVM-Anzeige vom links-seitigen Ausgang einstellen, wenn die rechte Seite des Stereomodulators moduliert wird. VR12M auf gleiche Weise für die rechte Seite einstellen. Stereotrennung auf optimale Balance zwischen L-R und R-L einstellen.

Bemerkung: Beim Abgleich der Stereotrennung ist der Signalfrequenzmesser abzuschalten.

■ Cassettenrecorder-Einstellung

VORMAGNETISIERUNGS-ABGLEICH

Kontroll-Einstellungen:
1. Cassettenrecorder . . . . . Aufnahmehetrieb
2. Dolby-Schalter . . . . . OUT
3. Pfeifunterdrückungsschalter . . B-Seite

SCHRITT	ABGLEICH-OBJEKT	RVM-ANSCHLUSS		BANDWAHL	EINSTELLEN	BEMERKUNGN
		Positiv	Negativ			
1	Vorspannung löschen	TP801	TP802	METAL	VR801	VR801 einstellen, um 150 ± 5 mV Anzeigs auf dem VTVM zu erhalten.
2	Aufnahme-Vorspannung	TP401 (L-Kanal) TP402 (R-Kanal)	TP403	NORMAL	VR803 VR802	VR803 einstellen, um die gleich spannung zu erhaltenm.

ANWEISUNGEN ZUM ABGLEICH–3

AZIMUTH, DOLBY, AUFNAHMESTROM, VU-METER-ABGLEICH

Kontroll-Einstellungen:
1. Cassettenrecorder ..... Wiedergabe-Betrieb
2. Bandwähler ..... NORMAL

SCHRITT	ABGLEICH-OBJEKT	RVM-ANSCHLUSS		TESTBAND	DOLBY-SCHALTER	EIN-STELLEN	BEMERKUNGN
		Positiv	Negativ				
1	R/P-Kopf Azimuth	Lautspre-Klemme	Lautsprecher-Klemme	10 kHz –5 dB	OUT	Kopf-schaube	Schraube auf max. Anzeige auf dem dem VTVM einstellen.
2	Dolby-Pegel	TP803 (L-Kanal) TP804 (R-Kanal)	TP805	400 Hz 200nWb/m	IN	VR403 VR404	VR403 und VR404 für 580 ± 20 mV Anzeige auf dem VTVM einstellen.
3	Aufnahme-strom	TP401 (L-Kanal) TP402 (R-Kanal)	TP403	–	IN	VR405 VR406	• Anschluß TP806 und TP807. • 1 kHz, 300 mV auf AUX IN anlegen und Aufnahmepegel bei Dolby-Pegel einstellen. • VR405 und VR406 für 0.58 ±0.02 mV Anzeige auf VTVM einstellen.
4	VU-Meter	Kein Anschluß		400 Hz 200nWb/m	IN	VR804	VR804 auf Leuchten bei +3VU (□□ Markierung)

ABGLEICHPUNKTE